

A Speculative Systems Model of the Dynamic
Interaction Among Students, Faculty, and
Administrators in the Community College,
With Particular Reference to Intrinsic
Motivation and the Teacher-Administrator
Interface

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To My Family
Jean, Dawn, and Laura
They Make a Difference

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A systems view implies that each individual is part of a larger system that extends in both directions. At the micro level one finds the living, transacting, human cell, that is necessary for physical survival. While not connected physically, other human beings are as essential, as the cell, to the individual's well-being, and creativity. Through interdependent, mutual growth, it is possible to achieve full humanness as a person. Without the feedforward-feedback transactions of one's support system, efforts like those represented in the pages that follow would likely not be initiated, let alone completed.

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Abstract

The challenge the community college faces in helping meet the needs of the living open system of society is examined in this study. It is postulated that internalization student outcomes are required by society to reduce entropy and remain self-renewing. Such behavior is characterized as having an intrinsically motivated energy source and displays the seeking and conquering of challenge, the development of reflective knowledge and skill, full use of all capabilities, internal control, growth orientation, high self-esteem, relativistic thinking and competence.

The development of a conceptual systems model that suggests how transactions among students, faculty and administration might occur to best meet the needs of internalization outcomes in students, and intrinsic motivation in faculty is a major purpose of this study. It is a speculative model that is based on a synthesis of a wide variety of variables. Empirical evidence, theoretical considerations, and speculative ideas are gathered together from researchers and theoreticians who are working on separate answers to questions of intrinsic motivation, internal control and environments that encourage their development. The model considers the effect administrators have on faculty and the corresponding effect faculty may have on students. The major concentration is on the administrator-teacher interface.

For administrators the model may serve as a guide in planning effective transactions, and establishing system goals. The teacher is offered a means to coordinate actions toward a specific overall objective, and the administrator, teacher and researcher are invited to use the model to experiment, innovate, verify the assumptions on which the model is based, and raise additional hypotheses.

Goals and history of the community colleges in Ontario are examined against current problems, previous progress and open system thinking. The nature of the person as a five part system is explored with emphasis on intrinsic motivation. The nature, operation, conceptualization, and value of this internal energy source is reviewed in detail. The current state of society, education and management theory are considered and the value of intrinsically motivating teaching tasks together with "system four" leadership style are featured. Evidence is reviewed that suggests intrinsically motivated faculty are needed, and "system four" leadership style is the kind of interaction-influence system needed to nurture intrinsic motivation in faculty.

Table of Contents

	Page
Acknowledgements	iii
Abstract	v
Table of Contents	vii
List of Tables	ix
List of Illustrations	x
 CHAPTER I. INTRODUCTION	 1
Background Theme and Problem	1
The Need for a Total Conceptual Model	4
Motivation	7
Theory: A Necessary Organizer	15
A Holistic Natural Systems Approach	16
Characteristics of Living Systems	22
Cognition: Purposeful Action	28
Growth: A Direction for the Future	31
A Summary and a Look Ahead	35
A Systems Model of Educational Transactions	37
Assumptions	39
 CHAPTER II. THE COMMUNITY COLLEGE	 47
The Community College as a Subsystem of Society	47
Early Development: The Formative Years	53
Current Progress	57
Self-Renewal: A Challenge at the Crossroads	61
 CHAPTER III. INTRINSIC MOTIVATION	 69
Motivation in a "Systems" Context	69
A Historical Perspective	72
A Systems View of the Person	83
The Physical Subsystem	85
The Social-Environmental Subsystem	88
The Cognitive Subsystem	95
The Triune Brain Concept	97
Stages of Intellectual Development	105
The Motivational-Emotional Subsystem	113
The Intrinsic Motivation Construct	118
Research Evidence on Intrinsic Motivation	122
The Physiological Structure of Intrinsic Motivation	130
Intrinsic Motivation in Operation	136
The Development of Intrinsic Motivation	146
Operationally Defining Intrinsic Motivation	151
Instrumentation	154

Needed! Intrinsic Motivation	160
The Needs of the Living System	163
The Needs of Education	164
Needed! Intrinsically Motivated Faculty	165
Student Outcomes	168
Intrinsically Motivated Teacher	
Characteristics: Some Empirical Data	173
Summary	187
CHAPTER IV. NURTURING INTRINSIC MOTIVATION	191
Society, Education, and Management Theory: Where	
Are We Now?	194
Some Action Choices Available to	
Administrators	202
Environments That Increase Motivation: Some	
Findings	207
Need Levels and the Task: Some Findings	
on Preferred Climates	210
Characteristics of Tasks that are Intrinsi-	
cally Motivating	212
Some Supporting Empirical Data	215
Organizational Management "System Four"	226
Research on System Four Management and	
College Administration	234
An Integrative Summary	239
Organizational Models of Motivation: A	
Summary	242
Chapter Summary	248
CHAPTER V. RECOMMENDATIONS FOR FUTURE RESEARCH	
AND APPLICATION	252
The Systems Model of Educational Transactions -	
Reviewed	254
The Detailed Model in Action	255
Expected Student Outcomes	259
Compliance	
Identification	
Internalization	
Teacher Behavior	271
Personal	277
Procedural	278
Teacher Characteristics	284
Perception	285
Motivation	287
Competence	290
Task and Administrative Input	297
The Teaching Task	299
Leadership Style	301

The Total Model and Some Hypotheses for Testing .	307
A Negative Cycle of Transactions	309
A Positive Cycle of Transactions	317
Alternate Hypotheses	318
Overall Summary and Conclusion	321
Bibliography	328

List of Tables

		page
Table 3-1.	"Drive" and "Uncertainty Reduction" Approaches to Motivation	123
Table 3-2.	More Complete Approaches to the Conceptualization of Intrinsic Motivation	125
Table 5-1.	Possible Student Outcomes Compared to Harrison's (1972) Three Part Hierarchy	264
Table 5-2.	Possible Personal Teacher Behaviors Compared to Harrison's (1972) Three Stage Hierarchy	274
Table 5-3.	Possible Procedural Teacher Behaviors Compared to Harrison's (1972) Three Stage Hierarchy	275
Table 5-4.	Teaching Task Input Compared to Likert's (1977) Systems One and Four	300
Table 5-5.	Administrative Input Compared to Likert's (1977) Systems One and Four	304
Table 5-6.	Input of System One "Active Incompetent" and "Happiness Incompetent" Leadership Styles on a Negative Cycle of Educational Transactions	315

List of Illustrations

	page
Figure 1-1. A systems model of educational transactions	41
Figure 3-1. Motivation in a systems model of educational transactions	71
Figure 3-2. Diagram of the triune brain (MacLean, 1973, p. 9)	98
Figure 3-3. The synaptic connection between two cells (Calder, 1970, p. 15)	110
Figure 3-4. The interaction of perception, motivation, and competence in educational transactions	114
Figure 3-5. Schematic diagram to illustrate the division of the cerebrum into intrinsic and extrinsic sectors on the basis of their afferent connections (Hunt, 1963b, p. 51)	133
Figure 3-6. Major parts of the human brain (Russell, 1975, p. 2)	136
Figure 3-7. The TOTE servomechanism with the feedforward operation shown (Pribram, 1971, p. 94)	140
Figure 3-8. A cognitive conception of intrinsically and extrinsically motivated behavior (Deci, 1975, p. 122)	145
Figure 3-9. The teacher-student interface and internalization outcomes in an educational systems model context	166
Figure 3-10. Classroom observation record form (Ryans, 1960, p. 86)	177
Figure 4-1. Leadership style and the teaching task as input in the systems model of educational transactions	193
Figure 4-2. Likert's management system conceptual sequence (Jongeward, 1976, p. 287)	229
Figure 5-1. The systems model of educational transactions in action	256

Figure 5-2.	A growth hierarchy of student outcomes	265
Figure 5-3.	Personal and procedural teacher behavior related to student outcomes in a systems context . .	276
Figure 5-4.	Perception, motivation, and competence related to teacher behavior in a systems model of educational transactions . . .	289
Figure 5-5.	Complete systems model of educational transactions	302
Figure 5-6.	Profile of organizational characteristics adapted from Likert (1976, p. 75) . . .	310

CHAPTER I

INTRODUCTION

Background Theme and Problem

As the community college system in Ontario starts to move through the second decade of existence, new challenges and priorities lie ahead. The colleges are now firmly established as an alternative to both university and direct entry into the workforce. Having passed through the searching and the ferment of the sixties, the climate is now one of practicality. Students look to the colleges as a means to acquire practical training that will allow them to successfully compete for the reduced number of jobs available. Administrators are concerned with maintaining viable programs at the lowest possible cost. The government and the legislature respond to the concern of the general public for reduced government spending, job creation, and stimulation of the economy. Faculty respond to increased enrollment and limited funding, with concern about the quality of education. The response of employers has been generally favourable, and this reception has been one of the main reasons the community colleges are enjoying their current high degree of popularity, while other educational institutions are faced with declining enrollment.

The next decade holds the potential for continued success and viability of the community college. It also holds the potential for demise in popularity, quality, and

overall effectiveness. How the colleges respond to the challenges ahead will determine whether they succeed or fail. While this statement may appear too dramatic in view of the current status enjoyed by the colleges, it is this success that can also turn into failure unless an awareness of the total situation exists, and the multitude of complex system components are considered.

The purpose of this thesis is to focus on what might be considered a start in leading toward a partial answer to some of the problems anticipated. This task is approached with a certain degree of trepidation as a multitude of variables operate in the situation, and many of them will still likely remain undetected. The task is also approached with a high degree of anticipation, as an attempt will be made to pull together as many of the variables as possible that can be identified, described, explained, and managed. As such, it is hoped that the conceptual framework developed will not only offer a tentative synthesis, but will serve the purpose of suggesting further hypotheses for testing.

The community college will be viewed as a living, natural system, functioning as part of a larger system. A conceptual paradigm will be developed that will attempt to identify, describe, and synthesize a key number of variables involved in the total interdependent, interactive system. The teacher-administrator interface will be a particular focus, and the encouragement of intrinsic motivation in faculty of special concern, because of the beneficial effects this is hypothesized

to have on teacher orientation and action, and the resulting positive effect on student outcomes. Transactions between teachers and administrators will be examined with particular reference to actions that may increase intrinsic motivation.

Although intrinsic motivation is an internal energy source, and cannot be stimulated directly, certain climates are considered antithetical, while others seem to be associated with the growth and increase in intrinsic motivation. In this thesis a motivational model will be established and then used to suggest actions college administrators might take to develop climates that are associated with the flourishing of intrinsic motivation. Considerable data will be taken from the research completed on management-subordinate relationships in business organizations, as a parallel seems to exist with the administrator and the community college teacher. This parallel relationship in business and education has been the subject of several attempts to relate the similarities and differences (Goldberg, 1970; Likert, 1977; Sergiovanni, Metzcus & Burden, 1969). The difficulty was highlighted by Likert (1977b) when he said

In higher education, it is much more difficult than in most business organizations to assess the relative importance of each of the variables affecting educational performance (p. 1, Appendix B).

The Need for a Total Conceptual Model

Likely because of these difficulties of identifying educational variables referred to by Likert (1977b) and others (Berliner, 1976; Coates & Thoresen, 1976; Gosine & Keith, 1970; Knezevich, 1977; Kulik & McKeachie, 1975; McKeachie & Kulik, 1975; Peck, 1976; Rosenshine, 1976; Sandefur & Adams, 1976) about education at all levels, a total, workable model that includes all components of the system has not yet been developed. Despite the absence of this conceptual base, however, educational decisions must be made. Student development needs facilitating, prospective teachers need preparation to teach, methods of teaching and learning must be found that encourage the development of citizens who are knowledgeable and capable of problem-solving, and decision-making in a wide variety of areas. Buildings must be constructed and used in ways that enhance the learning process. Teachers and staff must be hired, and continue to progress and develop to keep pace with changing demands and new discoveries. With the movement of faculty to new positions within the colleges at a minimum, and with the majority of faculty members now in the senior category, ways of keeping the internal motivation and quality of instruction at the same high level must be found. These and a myriad of other actions must be taken. Without an overall conceptual model as a framework for plans and actions taken, accomplishing the goals of education will be left to chance.

Currently, a wide variety of fragmented, and often contradictory actions seem to be taken. Attempts to influence the educational system have tended to stress techniques that lack a sound theoretical or empirical base. As Mouly (1978) indicates,

Despite the hundreds of studies conducted in education and related fields each year, educational practice is generally based as much on tradition, common sense, and consensus as it is on research (p. 308).

This "overwhelming preoccupation with practicality; and a negative and sometimes anti-intellectual attitude toward science and research" (Kerlinger, 1960) has many causes. Teachers are trained to accept prevailing educational practice rather than experiment and evaluate (Mouly, 1978, p. 309). The need for action of some kind, on the part of teachers and administrators faced with the task of teaching students, encourages quick and easy answers to complex problems. The prevailing spirit of the times and the latest panacea become the measures of much of the action taken. As a result, educational practice fluctuates from one extreme to another. Last year's "new" method becomes this year's discard. Excitement and promises of success instigate a fluctuation from one extreme to another, in ready succession. One year the emphasis is on programmed teaching machines, packaged learning, computer-assisted instruction, and educational TV. The next year, the move is to ungraded classes, team teaching, experiential learning, and creative

motivation. The focus then shifts to accountability, teacher evaluation and development, and standardized methods, to be replaced in following years by yet another group of "answers" to questions that have not been well articulated. These trends have been documented in both the United States and Canada, at all levels of education (Chambers, 1973; Clifford, 1973; Delgrosso, 1972, 1977; Konrad, 1974; McKeachie & Kulik, 1975; Mouly, 1978; O'Banion, 1977; Sanford, 1969; Silberman, 1966).

Searching for the magical elixir of the "one best way" is not only an impossible task, it also takes precious time away from systematic efforts that can, instead, be directed at attempts to identify and describe the problem and raise significant, answerable questions. This would then free the way for the identification of relevant variables, and explanations as to how they affect the educational process. Adequate theoretical conceptions could then be established, on the basis of correlations among variables that would clear the way for predictions based on empirical research.

Brophy (1974) outlined five stages needed for effective research. He contends that the stage of identifying relevant variables and correlating and integrating them into a theoretical conception has been bypassed. As a result, educational research and educational practice seem to live in two different worlds, causing practitioners to adopt methods that have no empirical base, and researchers to concentrate on narrow research questions that are unrelated

to the real world of the educator in the classroom or college. Mouly (1978) argues for a closing of the communication gap between the researcher and the educator, where they could both assist each other at the point where it all comes together, the classroom. He also emphasizes the importance of an overall theoretical structure that would help to give a perspective to the educational problems, and bring together the various separate research efforts. He said,

It has been the thesis of the present text that probably no obstacle stands so clearly in the path of progress of the science of education at this stage of development as does our failure to integrate into meaningful structure the reams of empirical findings that research has produced (p. 305).

Motivation

Considerable confusion exists on the topic of motivation, yet few topics are given as much coverage by faculty, researchers, administrators, and business managers. Faculty talk about the latest technique or presentation style that they have developed to get students to learn. Researchers attempt to discover methods that might be effective in "motivating" students. Administrators talk about how to motivate faculty, and managers in business organizations seek methods they might use as external controls of the actions of employees. These actions and attitudes are a reflection of a deep-seated misunderstanding of the nature of the person. Living human beings are always motivated. This state is not

readily apparent, however, as it is a personal, internal energy that is not necessarily reflected in outward action. Motives must be inferred, but this is complicated by several motives being expressed in one act, many appearing in disguised forms, different actions reflecting the same motive, and cultural and personal expressions that differ.

It is thus easy for the manager, administrator, or teacher to confuse cause and effect. The manager might see a member of his department working overtime, and assume that the new policy he developed to encourage his employees to put in extra hours was the cause of the overtime action. These kinds of assumptions have led to a proliferation of activities designed to identify external actions that will cause individuals to move. These efforts have left us with a heavy emphasis directed towards external methods, and very little on the personal, internal, intrinsic energy source within each person. This led Maslow (1971) to speak to the issue when he said,

What teachers have specialized in and gotten to be very good at is 'extrinsic learning'. The process of growing into the best human being one can be is, instead, 'intrinsic learning' (p. 51).

While Maslow's statement focused on the emphasis teachers place on external methods, his concern was a much larger one. He saw evidences in all sectors of our society of movement away from the true nature of the human being fulfilling his or her potential, and instead, movement toward uncritical

acceptance based on a system of response to rewards and punishment. The education Maslow (1971, p. 184) envisioned would help people overcome the conditioning imposed upon them by their culture, to free them into becoming the thinking, creative human beings their potential would allow. Encouraging intrinsic education and internalization outcomes in students, and intrinsic motivation in faculty does not seem to hold a high priority in the plans of college administration. Speaking of educational technology, and this imbalance recently, McKeachie and Kulik (1975) said:

Would be architects of modern higher education dream of an educational assembly-line moving ever faster as technology displaces the old-fashioned artisans...research evidence does not suggest that faculty members are simply feather-bedding in their reluctance to substitute technological innovations for traditional methods (pp. 177-178).

They also point to the way each of the external methods have been acclaimed as a panacea for motivational problems, yet have not resulted in the gains promised. They argue for interpersonal interaction and student participation, together with better explanations of individual differences, and the identification of clusters of variables that are important in the complex task of education. Others have also documented the growing concern about many of the current trends that seem to work against intrinsic motivation and learning (Delgrosso, 1972; Konrad, 1974; Perry et al., 1976, 1978; Pesuth, 1976; Pipes, 1977; Torrance & White, 1975, p. 273;

Ekert, 1971; Wallin, 1966). Several of the authors quoted review the methods of external control used; others consider the alternatives; and yet another group describe research on the effects to the total organization, and its long term goals.

What seems to be needed in education is not a struggle between the external and internal components, but an attempt to determine the kind of environmental structuring that will have the greatest chance of encouraging the development of an educational process that, in Hutcheon's (1975) words,

is carefully structured with the objective of rendering the child increasingly less dependent upon others as sources of authority and interpreters of reality. It must be deliberately structured so as to make him gradually more capable of operating on his environment reflectively and scientifically as a contributor to his culture's pool of organized intelligence rather than as a helpless victim of the products of the intelligence of others (p. 18).

McDonald et. al (1975) developed a structural model that attempts to bring together numerous variables that influence teaching and learning at the elementary level. No indication is given as to the direction these combined variables might take, nor is there any reference to motivation, in their conception. Organizational psychologists have built a considerable body of literature on the application of motivation theory to various organizations. Their focus has usually been on the practical applications needed for organizational development, and as such, they add yet another dimension.

Chris Argyris (1957, 1962, 1971a, 1971b, 1976) is one of the most prolific researchers in organizational development. He conceives normal human development as moving from dependence to independence, and yet again to a higher plane of interdependence. His research in on-going organizations indicates that it is possible for the goals of the organization to be met through individuals who in turn are meeting their goal of developing competence.

Likert (1967) researched effective and ineffective managers as measured by the organizations in which they worked. He found that four major styles could be identified, and placed on a continuum. Each of the "climates" arising from these styles of managing can be found in varying degrees in educational and business organizations alike. The value of Likert's description for educators lies in his identification of actions that administrators can take that will develop a structure that meets the objective described earlier by Hutcheon (1975, p. 18). These actions, called "System Four" by Likert (1967, op. cit.), are not confined to methods that can be used to encourage student internalization goals. Intrinsic motivation thrives in a climate such as that created by System Four administration, and seems to encourage the development and internalization of organizational goals in faculty and staff. It is the kind of climate that Deci (1975) describes as,

a work environment which is challenging, is interpersonally supportive, and allows for a considerable amount of self-determination. In such an environment people would receive information about their competence and they would be encouraged to engage in self-evaluation (p. 7).

Likert (1967) describes a participative "System Four" organization as one in which the satisfaction is relatively high, because individual growth and group effort are compatible, and favourable, cooperative attitudes are prevalent. Individuals also feel real responsibility for organizational goals, and personal achievement. Communication is initiated at all levels, and is relatively free from distortion.

At the other end of the continuum of management styles, he has identified a set of actions called "System One", exploitive authoritative. This set of behaviors produces quite a different climate that encourages continued dependence. Individual and group growth under these conditions are stultified. Hostility, tacit conformity, and distorted communication typify the interaction within the organization. Responsibility is felt by those at the top of the organizational structure, and powerlessness at the lower levels often turns into attempts to gain influence through informal opposition. This reaction of people placed in a position where it is difficult for them to develop seems to point to the natural tendency of growth in the human being. This tendency toward self-fulfillment, increased competence, and awareness will

be considered later as a major reason for the existence of educational structures and processes, shared by administrators, faculty, and students alike.

Before leaving the description of Likert's (1967) "System One" management style, however, it is important to consider yet another reaction possible from individuals who are prevented by an often benevolent and well-meaning authority from developing their intrinsic motivation. Seligman (1973, 1975) in his research on learned helplessness demonstrates how the external reinforcers of positive rewards are as much, if not even more concern than the external punishment usually associated with "System One". He draws our attention to the alienating effects that seem to be associated with receiving things without having to put any effort into the process oneself. Seligman (1973) suggests, "Rewards as well as punishments that come independently of one's own effort can be depressing" (p. 44). Research on these effects in the classroom, and elsewhere, continues (Perry et. al., 1978).

Despite the growing body of literature originating from organizational psychology, the results appear fragmented. Like education, a more comprehensive model appears necessary at this stage of development, which would draw together the various elements identified and described by empirical research. Steers and Mowday (1977) summed up this need when they said

There is no clear understanding of how jobs influence the level of employee motivation. A conceptual model is needed to guide research and provide greater insight into motivational implications of changes in the nature of jobs (p. 645).

A major part of this thesis will be devoted to a speculative synthesis of the research available on environments that encourage the development of intrinsic motivation and internal control.

In addition to the need for an overall conceptual model that draws together the findings from educational and organizational research, a third area requires consideration and inclusion. Numerous research psychologists, biologists, sociologists, and philosophers are working on their own separate answers to questions that relate to intrinsic motivation. Some are searching for an adequate description of intrinsic motivation and internal control (Atkinson, 1964; Berlyne, 1966; Day, 1971; deCharms, 1968; Hunt, J., 1971; McClelland, 1953; McReynolds, 1971; Rotter, 1966). Others are attempting to determine the physical location and operation of intrinsic motivation and how it might be best explained (Berlyne, 1971; Hebb, 1955; Hunt, 1963; Miller et al., 1960; White, 1959). Another group is attempting to pull some of these various approaches together through symposia (Day, 1971; Harvey, 1963), and books and articles that consider interrelationships and implications (Bieri, 1971; Deci, 1975; Land, 1973; Rotter, 1971; Schroder & Suedfeld, 1971). A number of other researchers are working on the interaction

effects of intrinsic and extrinsic motivation (Calder & Staw, 1975; Deci, 1975b; Eden, 1975; Greene & Lepper, 1975; Pinder, 1976; Staw, 1976). Only one kind of motivation is perceived by yet another group, who have highlighted the semantic confusion that exists in the terminology used by various researchers and practitioners alike (Avila & Purkey, 1966; Broedling, 1977; Dyer & Parker, 1975). This latter group have helped to explain why the single concept of internal motivation has been perceived as a fragmented internal and external energy system. More will be said later in attempting to clarify this confusion in labeling, and in the inclusion of findings from these various groups in an integrated conception of the person energized by intrinsic growth motivation who seeks challenge in becoming competent and self-determined.

Theory: A Necessary Organizer

This thesis will attempt to construct a theoretical model from the existing empirical knowledge available on intrinsic motivation; components of the educational system; and strategies administrators can adopt to encourage this positive, internal energy. If it meets the standard established for effective theory, it will demonstrate how isolated bits of empirical data can be organized into a broader conceptual scheme of wider applicability and predictability (Mouly, 1978, p. 35). As such, it will be based on a selection of facts, concepts, principles, ideas,

and values that have been chosen as relevant in meeting the goal of community colleges. One can expect that it will also be "oversimplified, self-contradictory, and incomplete" (Mouly, 1978, p. 37), but will hopefully serve to highlight the gaps, and permit further conceptions and hypotheses that can be empirically tested. One can also expect that it will observe the law of parsimony, yet at the same time, it will be reasonably comprehensive, and grounded in empirical data.

The basis for the selection of much of the data to be included is rooted in three major assumptions: The assumption that organizations, in both educational and other forms, are natural, living systems; the assumption that the human being guides his or her actions and establishes order and meaning through cognitive structure; and the assumption that people are driven by an active impulse for growth in actualizing their potential. Each of these assumptions will be examined, in more detail, in the sections that follow.

A Holistic Natural Systems Approach

The community college, and the people within, and without, will be viewed as a dynamic, complex, open, living, transacting system. This theme will serve as an organizer throughout the thesis. Considered from this perspective, the nature of the person, and that of the educational organization can be conceived in a holistic framework that is a complex of interdependent units. Each of these sub-systems

is, in turn, a complete system of its own, with specific characteristics and functions. As Laszlo (1972) stated,

A system in one perspective is a subsystem in another. But the systems view always treats systems as integrated wholes of their subsidiary components and never as the mechanistic aggregate of parts in isolable causal relations (p. 14).

The complexity of the individual, and of organizations, can no longer be adequately represented by simple linear cause and effect relationships between variables. Systems thinking offers a viable alternative. It allows human cognition to break free of the surrounding detail, perceive the total interconnected set of sub-systems, and probe for answers at any level. Each system, whether large or small, functions in a cyclical manner. In much the same way as the computer, an open system has input which in turn is processed, and appears as output in the environment. All four parts are important, as each one initiates a response from the other, and the system is maintained in a dynamic, growing state. Two such integrated systems will be considered. The first is the individual, and the second is the educational organization of the community college.

Since a college is an organizational system, it has the four major components of all systems. The input comes from administration, staff, faculty, students, information, materials, and funding. The process element consists of the goals, procedures, teaching styles and administrative methods.

Output appears in the form of learning and competence attained by students; the satisfaction enjoyed by administrators, staff, faculty, and students; and the accomplishment of short term, intermediate, and long term goals. The fourth major component is the environment that supports the structure represented by the other three. Since the community college is an open system, it is dependent upon the variable field of forces that constitute the outside environment, and its numerous, dynamic, transactions. As Rice (1970) so aptly phrased it,

Society now demands attention to its contemporary problems and a much quicker pay-off for its investments (p. 4).

If the environment rejects the output of the college, it will cease to exist. Thus the families of students, employers, government, and new undergraduates, to mention a few, all have a say in the effectiveness of the college.

Another important, yet often overlooked feature of the transaction between the environment and the open system of the college, concerns the effect of the college on the larger environment. Just as the college needs input from the environment to provide its energy source, the output from the college is the energy source that enables the environment to survive and continue to flourish. If the college produces students who possess closed system thinking, and who disregard the fragility of the environment, and the need for replenishing energy sources, the total system will collapse.

Survival is a long term measure. It depends on the accomplishment of the intermediate measures of growth and adaptiveness. In the short term, one can measure the progress toward these goals by assessing the organization's ability to be productive, efficient, and to do this by increasing the satisfaction of its members rather than decreasing this energy source. This interdependence, and the importance of the person as the main energy source is described by Katz and Kahn (1978):

Open system theory emphasizes the close relationship between a structure and its supporting environment. It begins with the concept of entropy, the assumption that without continued inputs any system soon runs down. One critical basis for identifying and understanding social systems is therefore their relationship with the energetic sources for their maintenance. For almost all social structures, the most important maintenance source is human effort and motivation (p. 3).

Thus the main thrust of this thesis will be on the behavior needed for effectiveness and survival of the total input-process-output-environment cycle, with particular emphasis on the motivation of faculty, and the transactions between faculty and administration, and how this has an effect on student outcomes. In considering the individual behavior required for effective organizational functioning, Katz and Kahn (1978) call for answers to the following questions:

1. What are the types of behavior required for effective organizational functioning?
2. What different motivational patterns are used...to evoke the required behaviors in organizational settings?
3. What are the conditions for eliciting a given motivation pattern in an organizational setting? (pp. 402-403)

Katz and Kahn (1978, Table 13-1, p. 403) also identify the major types of activity that appear as organizational output from the members of the system if it is to function effectively, and survive. They (Katz & Kahn, 1978) emphasize the importance of low turnover and absenteeism; dependable role behavior in meeting or exceeding quantity and quality standards; and the importance of innovative and spontaneous behavior that is based on cooperative actions between members, creative suggestions for organizational improvement, self-development, actions that protect the system and its parts, and finally, the creation of a favourable climate for the existence of the organization in the external environment.

Administrators have a number of options open to them in attempting to gain the output expressed by Katz and Kahn (1978). They can invoke legal compliance through the use of authority, and the threatened use of sanctions. In the short run, this may produce quantity, and even quality performance, but an overwhelming body of empirical evidence (Driscoll, 1978; Fleishman & Harris, 1962; Likert, 1961, 1967, 1977) has accumulated that indicates negative results soon show in the indicators described by Katz and Kahn. A minimum level of

performance, coupled with increased turnover, absenteeism, and grievances, soon appears to reduce the effectiveness of the organization. External rewards can also be used, and when they are constant, and adequate, they seem to be effective in holding people in the system. Some of the research to be considered later will show the confusion that has resulted in management prescriptions for effective behavior, that claim to bring about motivated personnel who are concerned with attaining the goals of the organization. Some of the most promising empirical research relates to a general conclusion Likert (1961) arrived at when he said,

Supervision is, therefore, always a relative process. To be effective and to communicate as intended, a leader must always adapt his behavior to take into account the expectations, values, and interpersonal skills of those with whom he is interacting (p. 95).

A major portion of this thesis will be devoted to the particular actions and needs of administration, faculty, and students in the community college, the development of a transactional model that provides for their unique input, and a consideration of the research on how to encourage intrinsic motivation.

An open systems approach to understanding organizations and the individuals within, requires a realization of both the complexity involved, and the implications. Aspects from the external environment need careful screening before they are included in the open system. At the other extreme, the

internal environment of the organization must avoid the errors so often made by organizations that are typified by closed system thinking. In these organizations, coordination and control become ends in themselves, without regard to either the effect on other internal subsystems or the external environment. Closed systems of the past, such as those recommended by people like Taylor (1911), assumed that a one best way could be identified for any action. This approach overlooked the equifinality principle (von Bertalanffy, 1950) that suggests open systems have more than one way to reach an objective, based on a variety of inputs and internal activities. The view taken to disturbing elements in the external environment is also an important characteristic of open system thinking. Problems in the outside environment are seen as opportunities to adjust internal functioning to take either a leading or following stance, as determined by an assessment of the long term effect on both the organization and the external environment of which it is a part. Colleges using open systems thinking would view the current emphasis on practical training for jobs that now exist in the external environment as a future problem needing consideration and action. Closed system thinking would view it as an opportunity for the college system to meet the relevant demands of the present, without concern for future problems or implications.

Characteristics of Living Systems

Because of the importance of the general systems theme as a main organizer for subsequent chapters, the main open system characteristics that have been mentioned either implicitly

or explicitly, together with those that have not been mentioned, are summarized below:

1. Holism: The whole is more than the sum of the parts.
2. Completeness, and Interdependence: Each unit or subsystem of a larger system is complete in itself, yet exists in a state of interdependence with the other units in the total system.
3. Open System: Information and energy is exchanged by the system and the larger environmental system in which it exists.
4. Cyclical Transformation: The open system takes inputs from the surrounding environment, transforms them in some way, and sends them back to the environment outside as outputs. The cycle is continuous.
5. Negative Entropy: Systems survive as long as they take in more energy than that needed to make transformations.
6. Internal Energy: Human effort and motivation is an important source of internal energy.
7. Survival: The open system depends on growth and adaptation for survival.
8. Balance: The need for a means to draw people together in cooperative effort must be prevented from becoming so rigid and overcontrolling that coordination and control become ends in themselves and choke the organization.
9. Feedback: Both positive and negative feedback is needed if an organization is to secure information on the effectiveness of its processing, and be able to adjust its

course of action. One of the first actions of a dying organization is the refusal to accept negative information about itself, and instead rely on cumbersome internal rules and procedures.

10. Multiple Goal Seeking: Social organizations seek multiple goals because they are composed of individuals with differing goals and values.
11. Equifinality: A system has the property of reaching the same final state regardless of the initial state, and the sequence of the input. This seems to imply that differing methods are acceptable.

Not only do open systems have the characteristics described above, they also have five subsystems (Katz & Kahn, 1978, p. 52). They have a production subsystem that is concerned with transforming the input. In the case of a college, this would be the educational function. Supportive subsystems maintain a liaison with the external environment, at the juncture of the input and output. In the college, this would be carried on by groups such as advisory committees, and the Board of Regents. The maintenance subsystem functions to join the diverse members of the organization into a functioning interdependent system. Adaptive subsystems ensure the organization will be able to respond effectively to external changes in the environment. Finally, managerial subsystems regulate the other subsystems through coordination, and control methods. The way this is accomplished is of

utmost importance to the survival of the organization. These five functions are needed because of the essential nature of social systems. As Katz and Kahn (1978) indicate,

As human inventions, social systems are imperfect. They can come apart at the seams overnight, but they can also outlast by centuries the biological organisms that originally created them. The cement that holds them together is essentially psychological rather than biological. Social systems are anchored in the attitudes, perceptions, beliefs, motivations, habits, and expectations of human beings (p. 37).

A major point to be taken from the above quotation is the placement of the human being at the centre. Human beings create social systems to facilitate their cognitive, biological, emotional, and social subsystems. Organizations are established to meet human needs in these four areas. This original purpose can be easily lost or subverted, however, as the means used for multiple goal seeking become ends in themselves. When an organization begins to strangle itself in the myriad of structures and procedures thus developed, it can no longer meet the needs of the human beings it was established for. Immediate members of the organization, the consumers of the organization's output, and the larger society of which these groups are but a part, react in a variety of ways to attempt to return the organization to its original purpose of meeting individual human needs. If the organization has maintained its adaptive subsystem, it will be able to respond to the changes being signaled, and the supportive and maintenance subsystems will be activated

and coordinated by the managerial subsystem to ensure the production subsystem is once again performing its necessary transformation function. Organizations that have not been able to retain their adaptability and flexibility are easy to detect, even before their demise. Symptoms such as internal conflict, empire building, an overabundance of regulatory rules and mechanisms, lack of cooperation, mis-communication, militant union groups and associations, apathy, and a total lack of consideration for the outside environment are some of the many indicators. They seem to indicate a struggle to satisfy individual and sub-group needs at the expense of the total integrated organization.

Thus, the living human being seems to be at the centre. The natural system, as represented by the human being, is a complex adaptive system that is open both internally, and externally, but differs from social systems because of a biological base. This means the human being is anchored in certain physical constancies, while the social system is not. The human being is always present, even when inactive. The social system, on the other hand, can only be recognized when it is functioning. This nebulous quality of social systems enhances the dependency on the person, and the individual's physical, emotional, social, and cognitive subsystems.

The human being has the potential to adapt or direct itself, and thus change or modify its structure. The important point is that it is not simply responding, but actively engaged in transacting with the environment and

itself. Buckley (1968) writes of the self-regulating function that drives toward maintaining its structure. This self-regulatory mechanism was demonstrated in lower animals when Wilson (1910) cut a sea sponge into pieces, and after eight days in sea water, the minute particles resumed the characteristic internal structure of the sponge. One of many examples of the person's characteristic self-awareness and self-direction is that of Viktor Frankl (1959), whose well-documented transactions with life in a concentration camp stands as a strong example of the existence of the adaptive qualities of the living human system. This unique quality of the adaptability of the human system is described by Buckley (1968) as a dynamic process where tension is handled, rather than merely accepted,

And instead of a system's seeking to manage tension, it would seem more apt to speak of a system's seeking to manage situations interpreted as responsible for the production of greater than normal tension (p. 503).

Empirical evidence on the resiliency, adaptability, and holistic (Smuts, 1926) quality of the person had been gathered by Goldstein (1942) in his study of brain-injured soldiers. He found that whatever happened in one part of the organism affected the whole organism. His organismic theory arose partly because he observed the resilience of the person in adapting to localized damage. He also observed that this positive adaptation would occur as long as the person thought he could manage his environment. The implications of this

finding for administrators will be considered later.

A view of open system thinking, and some of the similarities and differences that characterize the holistic social systems created by people with the dynamic qualities of the human system have been reviewed briefly. A main assumption is that people do make a difference. They not only act, they react to other human systems and to social systems. The fully functioning human system does not act at random and without purpose, however, and this direction towards oneness, integration and growth will be examined next.

Cognition: Purposeful Action

The human being is one of the most complex natural systems, and possesses special characteristics. The most distinguishing of these is the cerebral cortex, the seat of consciousness expressed through abstract thinking, language, feeling, and their expression in forms such as the written word. This unique ability to monitor the sensations picked up from the external and internal environment means that humans are, in Laszlo's (1972) words,

liberated from the world of concrete here-and-now experience and can enter a quasi-autonomous world of their own creation (p. 91).

The ability to transcend the concrete world also places the person in a position to direct his or her destiny by

establishing meaning, and order through cognitive structures. Thus the person selectively filters information from other systems and subsystems within and without. This data is then organized and integrated and serves to exert control on other parts of the system such as motives and emotion that influence behavior. Goal seeking and adaptation to a variety of circumstances is therefore possible.

Jean Piaget, as translated by Flavell (1963), offers a sound explanation of how the cognitive structures function. He indicates that adaptation occurs when the person assimilates certain aspects of the external environment into existing cognitive structure. A complementary process of accommodation then occurs and the existing cognitive structure is modified and developed further. These two processes form a dynamic equilibrium in regulating cognitive activity. The mind appears to develop through continual assimilation and accommodation. When the person encounters environmental data, it is compared with the existing schemata (cognitive structure). If no discrepancy exists, the data will be assimilated, and the person loses interests. If the data is moderately discrepant, the process of assimilation occurs. The person is thus required to accommodate, causing the development of cognitive structure.

As Isaacs (1963) interprets Piaget, the process of intellectual development results from the growing person taking action to form schemata that correspond to the outside environment. This implies that people build working models

of the world in their minds. Whenever thinking occurs, a part of the model is used. These models are constructed almost automatically unless a problem challenges the process. When this happens, the person becomes aware of the existing model or schemata, the gap that exists, and the possible means to close the gap and thus solve the problem. In this way, the person's structured model of the world is built, piece by piece.

The implications of the process described above are important in viewing the conception of the educational system to be developed. First, it implies that the person actively builds meaning in the cognitive structure. Secondly, the model of the world so established, depends on the stimulation available from sources external to the person. One might say that the person both influences other systems, and is in turn influenced by them. Real growth in the structure comes from the challenges or problems faced by the person that will cause him or her to examine existing models in the mind, and bring their resources to bear in the process of development. This creative process is described by Deci (1975) as he takes it one step further in establishing a place for motivated behavior. He said,

The overriding motivational principle in Piaget's theory seems to be that a human organism is by nature motivated toward the development of increasingly accurate and complex cognitive structures, which manifest themselves in terms of rational thought processes and consistent structures (p. 68).

This movement towards growth and self-fulfillment will be considered next.

Growth: A Direction for the Future

Up to this point, the picture of the human being has been sketched as one that perceives the person as an open dynamic system, directing its destiny with a unique cognitive structure. Another important dimension is that of growth. In his theory of transformation, Land (1973) conceives of man as a function of growth. He says,

The first postulate of transformation states that human behavior has naturally evolved from biological behavior, and that the behavior of all living things is growth-directed activity (p. 17).

Land (1973, p. 126) sees the destiny of all living systems as reaching out to affect the outside environment in some way. This implies an assimilation of external materials and a reconstituting of them into extensions of the self. This process of becoming, involves an active search for physical or cognitive nutrition. The data or physical matter is screened, ingested, divided into smaller units, and reassembled as part of the self. The process is not complete, however, until modification can occur as a result of feedback from the external environment. Land (1973) conceives of growth as occurring in three ways. The first is through the accretive process of adding to the basic form without changing it. The second is the replicative function. It is growth through transforming part of the environment to resemble the self, and imitating others. This is similar to the identification outcome

identified by Harrison (1972), that will be described in later chapters. The third is the process of mutual growth, where cooperative forms of behavior occur. This is a reciprocal exchange that benefits all those involved. His model allows for an explanation of how the human being progresses from simple dependence on the external input of other systems through to mutual interdependence with other living systems. Educators are in a unique position to facilitate this development in others. Perhaps this is why Land (1973) described the importance of growth for teachers when he said,

a person must grow as well as help grow. He must grow inwardly through the contribution of others, as well as outwardly by his own contributions (p. 186).

Land (1973) asks us to think of the evidences for such growth when he suggests consideration of how the human being both builds and destroys. These powers for growth have also taken people into a lengthened life as well as world conflict. The person seems to learn and forget, and in the process, continually transforms both himself and his environment.

Goldstein (1939) perceived growth as an actualization of potential. He described the normal, healthy organism as one

in which the tendency toward self-actualization is acting from within, and overcomes the disturbance arising from the clash with the world, not out of anxiety but out of the joy of conquest (p. 305).

His conclusion was based on the observation of the struggle formerly healthy minds went through in regaining their power of thought. He saw this movement propelled by a constructive

power for growth and actualization, and observed the effect of being able to overcome the brain damage incurred. This positive movement towards health and fulfillment, and the joy of actualizing one's potential was also observed by Abraham Maslow, the foremost spokesman of the humanistic movement. Maslow (1971) saw evidence of growth tendencies in his clinical studies. In describing what he observed, he said,

All the evidence that we have (mostly clinical evidence, but already some other kinds of research evidence) indicates that it is reasonable to assume in practically every human being, and certainly in almost every newborn baby, that there is an active will toward health, an impulse toward growth, or toward the actualization of human potentialities. But at once we are confronted with the very saddening realization that so few people make it (p. 25).

Carl Rogers (1961) has occupied most of his life with the process of helping others discover their potential and move towards the actualization described by Maslow. Rogers is not known as a cognitive psychologist, but he added a cognitive dimension to the notion of growth. He saw that actualization of one's potential could only take place when the choices are clearly perceived and understood. He postulated that the growth choice is selected when the person can tell the difference between regressive and progressive behavior.

Placing growth in a systems perspective, Laszlo (1972) describes it in a broader context. He conceives of fulfillment as a dynamic interchange between the person and the external environment. Since his view is an important base for what

follows, it will be included in his own words.

Fulfillment means the realization of human potentials for existence as a biological and sociocultural being. It means bodily as well as mental health. It means adaptation to the environment as a biological organism constituting an irreducible whole of its hierarchial parts, and as a sociocultural role carrier collaborately constituting the many multiperson systems in a given society. Fulfillment also means acting on the environment, both the internal one of the organism and the external one of the society, and making it compatible with the expression of one's potentials. It calls for a dynamic process of integration and adjustment, creating conditions for the actualization of all the potential there is in man (p. 110).

As Laszlo (1972) indicates, the growing person makes a difference. The growing student becomes a valuable and dynamic input to the larger environment. The growing teacher supplies energy to the system, and direction to the system's growth. The growing administrator is continually aware of the need for coordination and goal attainment, yet at the same time is cognizant of the dangers of overcontrol and abuse of power and influence. A growing community is aware of the need for informed citizens, its viability, and of the importance of the effect current actions have on long term goals.

The problem addressed in the following pages will be the question of what the community college can contribute to the goal of a growing society. In particular, it will be concerned with the articulation of a conceptual model that attempts to integrate the major subsystems together in such a way that the

outcomes needed by society are attained.

A Summary and a Look Ahead

In this chapter some goals were established, assumptions clarified, directions suggested, and needs identified. The importance of an awareness of the total situation, the multitude of complex system components, and coordinated planning was seen as necessary for continued success of the community college. A move in this direction would be the recognition of the college as a living natural subsystem of the larger open natural system of society, with the major function of providing a necessary energy source for the society to reverse entropy. This energy source was hypothesized to be the natural growth of the human being towards self-fulfillment and increased competence, and was seen to be reflected in intrinsic motivation. The point was raised that the open, natural, living system of society needs self-renewing, intrinsically motivated, and internally controlled individuals, and effort would be usefully directed in establishing a climate where such individuals could develop.

The current situation was described as one that is characterized by confusion about motivation, with a heavy emphasis on external methods, and a reliance on quick and easy panaceas that fail to recognize the complexity of the situation, and often end up making it worse. The question of what can be done by the colleges to structure an environment

that renders the student increasingly less dependent on others, and insures individual and organizational goals are compatible, was raised.

It was suggested that a model was needed for the community college that draws together various bits of evidence into a loosely integrated conceptual system that can reflect the many variables involved. It would also bring together the contributions from diverse areas, and relate them in such a way that educators can be aided in taking a planned approach to meet the goals of education, and the researcher has an overall conceptual model on which to base empirical investigation. Such a model will be reviewed below, and is based on several assumptions. The first is that both individuals and organizations are open, natural, living systems that are characterized by properties of all living systems. The second is that the human being is at the centre of organizational systems and provides the energy and adaptability needed. A third assumption is that the natural direction of the human being is toward growth in complexity, helped through intrinsic motivation, and developing cognitive structure to become self-determined and self-controlled. These qualities are hypothesized to be the force society needs to balance the movement for control and stability with that of change and flexibility, and thus insure the adaptability of society.

A Systems Model of Educational Transactions

Earlier, the point was made that the function of education was to produce the kind of individuals described above. It is suggested that if education produces people who are flexible, imaginative, discriminating, and capable of self-expression, that open system thinking will flourish. A general systems model was suggested as a way to conceptualize the multiplicity of variables involved, and to help organize them in a way that ensures the development of the qualities society needs. Coordinated actions are necessary for the production of student outcomes needed by society to adapt, and survive. These actions cannot be left to chance, myth, or common practice. A planned approach, which centres around an open, conceptual systems model was argued for. This section will describe such a model, as conceived for the community college. It will be speculative, in that it will endeavour to gather together a wide variety of variables and relate them, even though some may not be completely supported by empirical evidence, and others only partially supported. It will also be based on a large number of carefully researched empirical studies, and theoretical conceptions that have stood the test of time. It is hoped that such a model will offer a gestalt that establishes a starting place for the raising of further questions, and establishing hypotheses for testing.

The model will be an attempt to suggest how transactions

among students, faculty, and administrators occur, and indicate how they might take place to encourage intrinsic motivation in faculty and internalization outcomes in students. It will not attempt to include the external environment, nor will it include the support staff of the college. Instead, the focus will be narrowed to highlight the effect administrators have on teachers, and the effect faculty have on students. This is not a linear relationship, but is, instead, an attempt to conceptualize the dynamic feedforward, feedback relationship involved. As such, it will not include all variables operating in the system, but will attempt to narrow them to include those that have a direct impact on teachers and students, while still maintaining the essential variables involved.

The model will attempt to meet several goals. In this section, the total conceptual model will be reviewed, for the purpose of establishing an advance organizer for the remaining chapters. A diagram will also be presented when each of the detailed areas are covered. As the chapters unfold, it is hoped that they will suggest a number of possible applications for administrators, teachers, and researchers alike. For administrators, the model may serve as a guide in planning effective transactions, and establishing system goals. The teacher is offered a means to coordinate actions toward a specific overall objective, and both the teacher and researcher may use the model to experiment, innovate, and raise future hypotheses for testing. An attempt will also be

made to clarify the confusion that exists about motivation, and suggest actions that could be taken within the system, by administrators, and teachers, to bring about effective student outcomes, as well as move towards competence and interdependence themselves.

Assumptions

Several aspects need clarification about the development of the model. First, it will be incomplete and oversimplified. The focus has been restricted not only for parsimony, but because such an approach ensures the emphasis can be placed on faculty-administrator transactions, and the encouragement of intrinsic motivation in faculty. Second, the assumption has been made that intrinsically motivated faculty will be more likely to facilitate "internalization" outcomes in students, than those who are externally controlled or motivated. Third, administrators who use a "system four" or similar administrative style, are assumed to be more likely to encourage intrinsic motivation in teaching faculty at community colleges. A fourth assumption is that intrinsic motivation is desirable to encourage because it supplies the energy source necessary for the college to meet its objectives, to be described in chapter two. A fifth assumption is that intrinsic motivation is the on-going energy state that represents the person's natural condition, but life experiences often stultify this human quality, and cause the person to rely on more primitive emotional and motivational drives, or cause a "downshift" (Gevarter, 1977) to external responding. This leads to a sixth assumption, that the human being establishes meaning

through cognitive structure, and is naturally motivated toward growth in complexity, and the actualization of potential. It is also assumed that the college educational system, like the human being, is a natural living system, which can be measured in its short term effectiveness through its ability to produce internalization outcomes, and in its long term goal of reversing entropy of the larger environmental system. Thus, it is assumed that growth and adaptation are necessary for survival of all systems, through actions such as positive and negative feedback, multiple goal seeking opportunities, and a balance between openness and structure. In this connection, real growth comes from challenges and problems that cause the organizational or human system to examine its existing models, and bring them closer to reality.

The model shown in figure 1-1 will conceptualize how transactions among teachers, the teaching task, administrators, and students may occur, with the goal of bringing about internalization outcomes in students. The type of teacher behavior that seems to invite these outcomes will be considered, along with the related teacher characteristics of perception, motivation, and competence. The influence of administrative style, and the teaching task, will also be examined from the standpoint of their impact.

More detailed interrelationships will be described in chapters four and five, but a general description of the model is offered below, as an advance conceptual organizer for the chapters that follow. Figure 1-1 might be considered

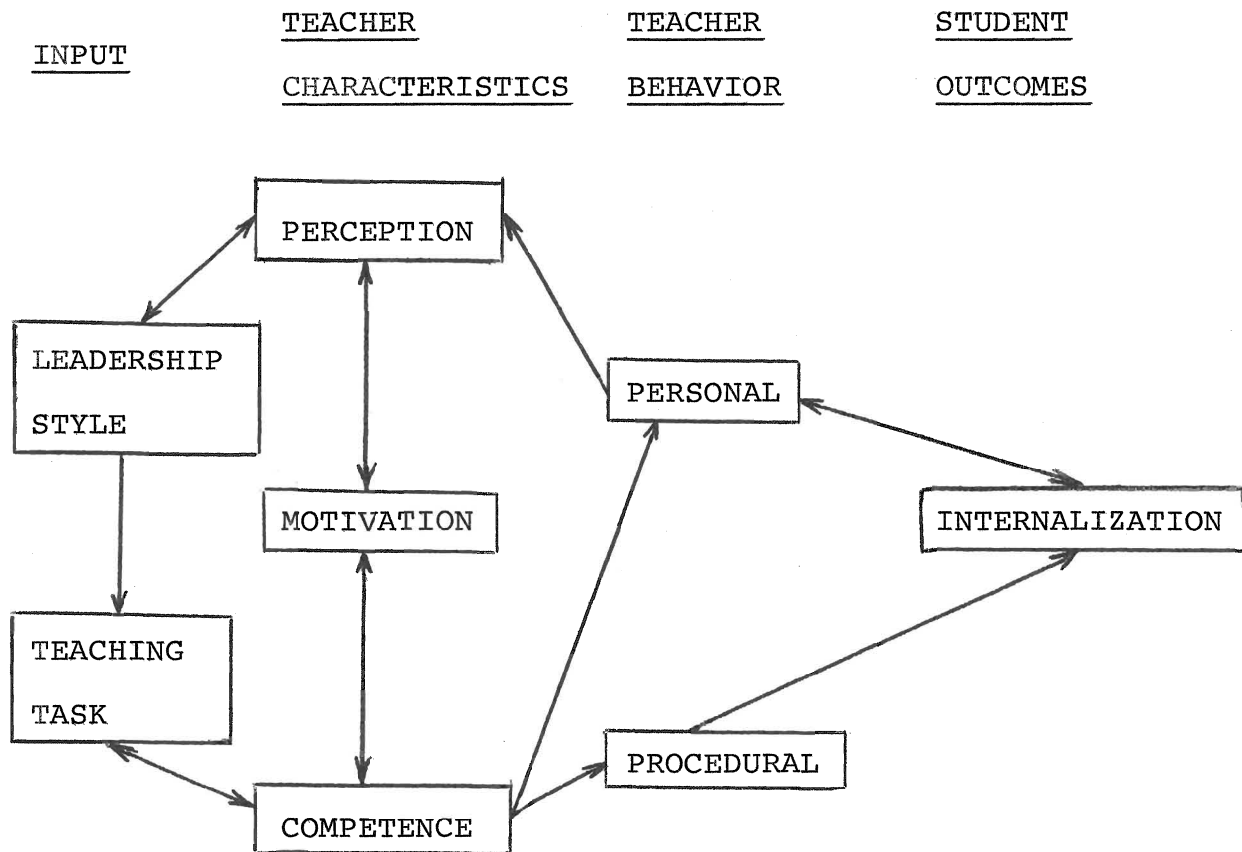


Figure 1-1. A systems model of educational transactions.

as a modified living system, with input that relates directly to the teacher, rather than the total college. The teacher thus becomes the focus point of the model, even though the outcome is finally reflected in student competence. As such, the model is not intended to represent the numerous transactions that could be included in a total college system model.

The teaching task is viewed as the principal input. The actual job of teaching is complex, dynamic, and contains an

abundance of challenge. In addition, it offers the opportunity for feedforward, as well as feedback elements. As the double arrow indicates, the task has an impact on the teacher's competence, and this feeds forward to the task, in the form of modifications and improvements in the task itself. This, in turn, feeds back to the teacher's intrinsic motivation, and the teacher perceives he is competent and self-directed. This establishes another cycle that increases the teacher's intrinsic motivation, establishes feelings of increased competence, and encourages the person to seek further challenge through innovation and creativity directed at the task. Providing this energized motivation remains, the teacher's competence is further directed to the teacher procedural, and personal behaviors needed to facilitate and invite internalization outcomes in students.

This pleasant state of affairs would likely continue, if it were not for two conditions that may impact on the teacher's intrinsically motivated state. One is the interrupt mechanisms of emotion and lower-order drives, and the other is the external modification of the teaching task. It is at this point that the influence of leadership style can have either a positive or a negative effect. If administrative action maintains rather than diminishes the challenge in the teaching task, allows the faculty to have influence in the decision-making structure, and does not disrupt the satisfaction

of lower-order needs such as security, the chances are greater that intrinsic motivation will continue. On the other hand, intrinsic motivation will likely be reduced in the total system, through unilateral, coercive and punitive administrative actions, and a reduction in the complexity of the teaching task.

Another feedback mechanism is provided from the results that show up as student outcomes. Like administrative input, student behavior is part of the social subsystem described in chapter three. When student growth is evident, this has a feedback effect through the teacher's personal behavior, which in turn, relates to the teacher's perception of his own actions, self-concept, and feelings of accomplishment. This has a positive effect on intrinsic motivation, and is reflected in increasing competence. The complete detailed systems model will be brought together in chapter five.

Subsequent chapters will review theoretical and empirical data that bears on various parts of the model. Chapter two will establish a college orientation and consider the goals and functions of the college in a living systems perspective. Of special concern will be the long term effects of educational socialization. An argument will be made for open system thinking that keeps the larger environmental system viable. Objectives in the formative years will be reviewed, compared with progress, and current problems, and the goal of self-

renewal as the next challenge.

Chapter three will explore the nature of the person as a five part system. Anchored in the physical subsystem, the individual will be perceived as being nurtured by the social subsystem, to a stage of independence, where the cognitive subsystem, as the master control, fulfills the promise of the person's destiny as a human being. The fourth subsystem, the motivational-emotional one, supplies the needed energy, and will be the major focus of the chapter. The environment is the fifth subsystem that needs the input of intrinsically-motivated persons, and is needed by them. They will be shown to have the competence and self-direction society requires to reverse entropy. Evidence will be reviewed that points to the motivated state as the natural condition of the person. The relationship of this intrinsic energy source and lower-order drives and emotions will be explained in the context of the available research. After the physical structure, operation and development of intrinsic motivation are considered, a need for intrinsic motivation will be examined. An argument will be made for intrinsically motivated people as necessary for the total living system, and education. In particular, intrinsically motivated faculty will be shown to have many of the qualities needed to bring about internalization outcomes in students.

Chapter four begins with a look at the current state of society, education, and management theory. Action choices available to administrators will be reviewed for the purpose

of showing how they represent a continuum of approaches from external methods of control, to those that can establish a climate where the person can reward themselves. Environments that are associated with intrinsic motivation will then be considered. One major feature to be described in detail is the intrinsically motivating task, and the supporting evidence. A second area of concentration will be Likert's "System Four" leadership style. It will be shown to be the kind of interaction-influence system that seems to be appropriate for the nurturing of intrinsic motivation. Evidence that supports this contention will be based on empirical research that demonstrates that college faculty prefer "System Four" management, are more innovative, communicative, and more likely to achieve organizational goals in this type of climate. The last section of the chapter will explore various organizational models of motivation for the purpose of establishing a background for the systems model to be described and explained in the next chapter.

The fifth chapter is devoted to a presentation of the detailed systems model of educational transactions. Each of the four major areas will be described, and related to the others. When the total model has been established from the detailed examination of its parts, some speculations will be offered. A negative and a positive cycle will be suggested, and general hypotheses stated from each. This will be followed by alternate hypotheses. An overall summary will

attempt to draw the chapters together and an invitation will be offered to speculate further, and test the hypotheses and model.

CHAPTER II

THE COMMUNITY COLLEGE

The Community College as a Subsystem of Society

One of the measures of importance frequently used in our North American culture is the economic one. By this standard, Canadian education would be the most important subsystem in the larger Canadian environmental system. According to Konrad (1974b),

Education is Canada's biggest industry. One of every three persons is either a teacher or a student or employed by an educational institution (p. 17).

This was echoed by Campbell (1977, p. 19) three years later. As to the capital investment in Ontario's community colleges, Konrad (1974b) indicated that "Ontario has spent more than 300 million dollars so far in capital investment alone in colleges" (p. 17). It would seem that Canadians value education highly. Determining the reasons is more difficult.

Does the value reflect a fundamental respect for the growth of individual competence and worth? Is the esteem education holds a function of its ability to pass along the knowledge acquired by the culture? Does the individual perceive education as a way to gain both vertical and horizontal mobility? Is education valued because it is a

means to increase the provinces' skill level and vocational preparation? Is education considered an effective means to handle the technological revolution? Does education help students to achieve an integration of personality?

Will education be the force that will create true citizens of the world? Will the colleges help the individual to prepare for role and job changes in the future? Will education help the individual to develop flexibility, creativity, responsibility and openness to experience? What effect can education have on the individual's thinking, and problem-solving skills? Will education help the person appreciate all facets of life, and thereby ensure the person will earn a good life as well as a living? What effect does education have on standards and values? Is education of value because it helps the individual to develop a strong identity, conceptual understanding, and an ability to endure deprivation? Does education, at the other extreme, have value for its function as a certification tool? Is the grade allotted with the learning, or instead of learning, the important product, instead of the by-product? Is an increase in formal education and certification still being equated with a corresponding increase in lifetime earnings and material rewards (National Health & Welfare, 1967; Fleming, 1971, p. 2)?

One could easily continue the list of questions on the value of education. It is this factor, together with the wide diversity of benefits that can be perceived, that perhaps is responsible for the esteem education has acquired. The question

that still remains, is whether the perceived ability to satisfy a wide range of immediate consumer needs is the real measure of the value of education. While many of the needs indicated in the questions listed are being met, it is necessary to probe much deeper for the reasons why education seems to be at the centre of our concern.

The living, functioning human being is a dynamic, purposeful system who attempts to control the ever-changing environment within and without. The person is also part of a larger system that requires the interdependent contribution of each member. It is in this context that education plays a crucial role, for the educational experience functions to assist individuals to change and develop in the direction of self-fulfillment, complexity, and competence (Kagan & Lang, 1978, chap. 3). If the individual passes through an educational experience unchanged, no learning or other benefits have accrued, despite the outward indicators achieved such as diplomas and job certification. The system's view demands more than mere labelling of education. This perspective is described by Rice (1970) in terms of the input-process-output model, when he described how the university system functions:

In practice, this means the intake is man; the conversion processes are what he thinks, feels, and does; the output is what he communicates (p. 29).

This theme of change appears repeatedly (Commission on Post-Secondary Education in Ontario, 1972; Kagan & Lang, 1978;

Sanford, 1969) at all levels of education. The change is never random, as it is described in education, nor is it left to chance. Sanford (1969) emphasizes the importance of liberating the individual "from dogma and prejudice, or to give him a new sense of identity" (p. xiii). This intellectual freedom to explore through change is taken even further by The Commission on Post-Secondary Education in Ontario (1972, pp. 29-33). They point to the need to balance the opposites of "continuity and change, conservation and innovation" (p. 29), and for the need to view them as "complementary, not contradictory" (p. 29). An even more important reason for this freedom for change is described in their report (1972) as basic to continued existence, when they said,

the very adaptation and survival of society depend on the constant critical analysis of its ideas, structure, and activities, and a notably large element of these necessary social analysts and critics is found in the realm of post-secondary education (p. 32).

Continuing this line of reasoning will lead one to draw some tentative conclusions on the importance of education, and to consider the function of growth, development, and formal education in the larger system of society.

The five subsystems of a social system were reviewed briefly in chapter one. Of these five, the adaptive subsystem is the one that education can have the most effect upon. In carrying out the productive subsystem function of transformation, community colleges have the opportunity of increasing

the chances that the society will be self-renewing. As Gardner (1962) said,

The ever-renewing society fosters innovative, versatile, and self-renewing men and women, and gives them room to breathe. Having room to breathe, they will contribute, as only they can, to the society's continued vitality (p. 2).

As Gardner (1962) suggests, the kind of transformation that takes place in the students in college, and in other forms of education, will determine the success of the society. This is consistent with systems thinking, as the energy source for the maintenance function in society comes from individual motivation and effort.

In chapter one it was established that the individual is an essential part of any social system (Katz & Kahn, 1978), and his unique cognitive structure frees the person to act upon the environment (Laszlo, 1972). A continuous input of effective thinkers, and problem solvers entering society, from the college's output, seems to be what Sanford (1969) had in mind when he signaled some indicators of a college's successful efforts at change, in the following example:

if a college admits students with relatively primitive tastes, shallow interests, values unmodified since childhood, and rigid patterns of thinking, and if after four years it turns out students who are flexible, imaginative, discriminating, and capable of self-expression, the college is undoubtedly a success (p. 19).

This type of change is not confined to university, but

is the quality society needs at all levels. The Commission on Post-Secondary Education in Ontario (1972) reported that

Levels of competence should not be confused with degrees of quality: we expect an individual who processes X-ray plates to be as competent in his field as someone performing delicate neurosurgery (p. 32).

The Commission (op.cit., 1972) goes even further on this theme, later in their report, when they describe the kind of skills, and the reasons for them. They stated that

We must have a continual broadening of skills and knowledge to enable us to live in a world where the problems of providing sufficient goods, the social strains of living closely together, and the ecological dangers of ruining our environment all threaten survival itself (p. 33).

When the system's implications are considered, the importance of the foregoing becomes apparent. A system operates in a cyclic fashion. Energy is imported in the form of students for the college, where it is transformed and returned to the larger environment, to become the source for re-energizing the cycle. Open system thinking views this supportive interface between the colleges and the larger environment as a symbiotic one. The colleges need input in order to survive, and the transformation process must be such that the output supplied to society in the form of competent individuals, is not only accepted, but serves as an energizing force that counteracts the entropic movement towards disorganization or death of the society. In other words, the

educational output from the colleges becomes a means for the society to reverse or forestall entropy, and instead, develop a negative entropy to survive. As Katz and Kahn (1978) indicate,

The entropic process is a universal law of nature in which all forms of organization move toward disorganization or death ... The cycle of input, transformation, and output is essential to system life, and it is a cycle of negative entropy (p. 25).

With this same systems theme as background, the early development and current state of the community college in Ontario will be considered.

Early Development: The Formative Years

The Ontario Community College system was formally launched by the Minister of Education, in a statement to the Legislature of Ontario, on May 21, 1965. This statement was subsequently compiled in a booklet (Ontario Department of Education, 1967) about the salient features of the colleges, and the goals to be achieved. The objectives at that time were:

The long-term solution to most of our problems obviously lies in education and training, in the fullest possible development and utilization of all our human resources. We must prepare Canadian youth to enter the multitude of highly-skilled jobs available today and the ever greater numbers which will arise in the future (p. 7).

Our true wealth resides in an educated citizenry; our shrewdest and most profitable investment rests in the education of our people. A general phenomenon of our day is that brainworkers - ('knowledge workers', as they are more frequently labeled, to contrast with 'manual workers'), and these, in the future, of an ever-higher calibre - are the prime economic need for societies in advanced states of industrialism (p. 7).

It is the task and the purpose of this government to provide whatever opportunities are necessary to enable each individual, through education, to develop his potentialities to the fullest degree and to employ his talents to the greatest advantage, and we plan to accomplish this through free choice, not by coercion and regimentation of our fellow-citizens (p. 7).

If we are to attain these ends, we must of course envisage an educational structure far greater and more efficient than any we have yet known (p. 7).

In education, as in other segments of our economy, the key to our future clearly lies in research and development - in planning to anticipate and meet the demands of social and technological change through deliberate alteration of the educational structure. This will require research and experimentation, and a continuing evaluation of the old and the new (p. 7).

In 1970, these general guidelines were followed by more detailed ones on the development of curricula (Ontario Department of Education, 1970). They provided for career-oriented programs that would lead to employment, and continued education. This was balanced with the provision for one-third of the time spent in general education subjects, and the remaining time in vocational subjects geared to the area of employment.

A summary of these goals and guidelines might indicate the perceived long term solution of most of Ontario's problems lies in the education and training of its people. This investment is best accomplished through full development of the individual's potential through free choice. This would mean the preparation of youth to enter highly skilled jobs, and the planning and re-evaluation of the educational structure to meet the demands of change through continual evaluation of the old and the new.

In carrying out the goals and objectives described above, the community college has entered into a process of maturation that is faced by all growing systems, whether social or human. In the early stages of the first decade, the colleges, like any other young organization, could be described as flexible, searching, and eager to demonstrate its usefulness, and establish itself. During these early years the many unknowns, both internally and externally, required procedures that could be adapted quickly and easily; roles and relationships of a fluid nature; and a willingness to innovate, experiment, and try out new and varied ways of solving problems that were not restricted by the weight of convention and tradition. Katz and Kahn (1978, p. 71) would describe this as a "stage one primitive system", of people with common needs, task, and environmental problems. The rudimentary production structure works at this stage because of cooperative task behavior, and a loose organizational structure. The

organization grows from this point to emphasize the managerial function, which develops an authority structure to bind members of the social system together formally. Shortly thereafter, a maintenance system develops to ensure the organizational members stay in the system and continue to carry out the task. The means adopted at this stage have implications for later flexibility and adaptability, as the organization moves toward a more complex and stable social organization, and production system. The maintenance system also becomes more elaborate at this point, as it develops rules, rewards, and sanctions to maintain the total system. As Land (1977) would say, the organization has moved from the initial stage of disorder to one of increasing control, and growth is underway.

Growth is the process by which things become connected with each other and operate at higher levels of organization and complexity (p. 19).

Over the last decade, the Ontario Community College System has increased in size, increased the number of colleges and their campuses to twenty-two (Ministry of Colleges and Universities, 1978), and increased in specialization and differentiation of function. Merger with other organizations, the fourth form of growth listed by Katz and Kahn (1978, pp. 78-81), has been contemplated but has not taken place. Another measure, their success, will be considered next.

Current Progress

Since their inception a little over a decade ago, the Ontario community colleges have firmly established themselves as a valuable adjunct to the Ontario community. From a position of wary acceptance and unknown performance, they are now welcomed by the business community as providing personnel for their needs, who possess vocational and career skills. While other sectors of the educational establishment face declining enrollment, the CAATs (Colleges of Applied Arts and Technology) are grappling with problems associated with increasing enrollment. As a recent study has indicated (Minister of Colleges and Universities, 1977, p. 40), the general public and students agree with the importance of the CAATs role in vocational and career skills, and extend this to the inclusion of objectives of a more academic nature, such as theoretical understanding, problem solving skills, and the development of positive attitudes toward learning. This encouragement from educators, students, and public to the extension of the role of the colleges, would seem to be a vote of confidence in the way the CAATs have met one of the objectives established at the outset of the colleges. Preparing people to enter highly skilled jobs has thus paved the way for the CAATs to yet another objective. As the Secondary/Post-Secondary Interface Study (Minister of Colleges and Universities, 1977, op.cit.) indicates,

Educators and students are relatively satisfied with the performance of CAATs in terms of developing vocational and career skills. But CAAT students and, in particular, faculty members, appear to be more reluctant to credit CAATs for successfully achieving another "first level" objectives, the development of students' problem solving skills (p. 41).

This second objective seems to relate to the original goal of full development of the individual's potential through free choice, and offers a suggested direction for future task activity. Another suggestion made in the report (Interface Study, 1977, p. 49), is that increased communication occur between the secondary schools and the CAATs, especially on admission standards. In describing an improvement in the level of achievement of CAAT students, the study (Interface Study, 1977) reports,

Improvements, they (those with the opinion that there is improvement) say, results from maturation of the system in conjunction with a recognition and resolution of problems, and an updating of CAAT objectives (p. 43).

Thus, the community college system in Ontario is entering what Katz and Kahn (1978, p. 71) would describe as a second stage of "stable organization". The maintenance system becomes elaborated, the production structure becomes tightened, and needs for supportive subsystems develop. At this stage, it is important that the forces for control and stability are balanced by the forces for change and flexibility. If the colleges are to perform their important adaptive function for the community they serve, it is

important, at this time, to build in adaptation to their own internal organization so that it can respond effectively to counteract the natural forces of entropy. Katz and Kahn (1978), warn about the inadequate record educational institutions have in the development of effective adaptive systems, and indicate,

The adaptive function, like the maintenance function, is directed toward the survival of the organization. Although the maintenance function faces inward and the adaptive function faces outward, they are similar with respect to another basic tendency. Both move in the direction of preserving constancy and predictability in the conditions of organizational life. The maintenance function moves toward a constant set of internal structures. The adaptive function tends to achieve environmental constancy by bringing the external world under control ... The adaptive function, however, can move in both directions. It can strive to attain control over the external forces and maintain predictability for its operation in this fashion, or it can seek internal modification of its own organizational structures to meet the needs of a changing world (p. 89).

One way to measure the direction the CAATs have taken, is to consider the structures and relationships that have developed. It is the production and maintenance structure of the organization that must be balanced so that the system is neither too rigid nor too loose. Helpful systems can make communication and creativity easier to come by, but they can just as easily turn into an over-emphasis on administrative structuring for its own sake, that reduces the organization's vigour and vitality. Fixed roles and relationships,

prescribed routines, elaborate rules, and inflexible informal norms and attitudes can hold down innovation, yet look efficient to the casual observer. The literature is full of case examples and empirical data that expands on this dichotomy (Alschuler, 1972, p. 599; Fleming, 1972, chap. 3, Gardner, 1963, chap. 5; Hutcheon, 1975; Katz & Kahn, 1978, pp. 83-87; Kelly, 1975, p. 67; Richardson, 1975, p. xii). As Fleming (1972) warns, organizations can overdo the search for ways to forestall change, and these forces to maintain the status quo, become destructive elements which,

if not checked, tend to transform an efficient organization into an inefficient one. Habit, tradition, and the accumulation of precedent reduce the freedom, as well as the pain of making choices (Fleming, 1972, p. 63).

Ontario's community colleges have developed a structure that helped them reach their initial objectives. Changes, however, have brought additional structures, in the form of faculty and staff unions. Whereas the line between faculty and staff had been an informal, collegial one, the relationships slowly began to turn into more formal and distant ones. Roles of employee-management have replaced the local, informal transactions. One central bargaining team now negotiates for all community college faculty and staff. With the corresponding long, drawn-out delays in arriving at agreement, the hierarchy relationships have been emphasized, further reducing communication. At the same time,

a demand to reduce budget expenses for education, and numerous external problems in the society, have called for increased effectiveness of the educational system, as well as efficiency. The crucial question to be asked at this time, is whether the increasing forces to rigidify the structure, methods, and relationships can be tempered to bring about the student outcomes so necessary for our society to survive. Is the output of the community college one that will keep the larger environmental system viable, growing, and adapting, with a supply of necessary energy, or will our citizens of tomorrow merely repeat the mistakes our culture is already making, as the colleges will have trained to replace the existing milieu? (see Brameld, 1976; Conrad, 1976; Leff, 1978).

Self-Renewal: A Challenge at the Crossroads

The next direction for the CAATs to take has already been plotted (Ontario Department of Education, 1967). One is the full development of the individual's potential through increased competence, effective problem-solving skills, self-confidence, awareness of the world about him or her, well developed values and standards, and the knowledge that they can make a difference by knowing how to balance the need for change, and the corresponding need to conserve what is valid and worthwhile from the past heritage. This goal is succinctly stated by Hutcheon (1975):

It is to the global community of humanity, seen as a social system in its entirety, that we must now look. We can thus begin to conceive of education as mankind's instrument for transmitting, selecting and reconstructing that core of beliefs about the real and the good that holds the human group together and enables them to adapt to their changing physical environment, and to changes in human civilization (p. 187).

As one thinks about the many indicators and trends in the Canadian society, it is not difficult to imagine the problems faced by the student upon graduation. Crysdale and Beattie (1977) review some of these trends. They point to the statistics on marriage and divorce, where the inverse relationship is easy to perceive. In Ontario from 1941 to 1974, the marriages per 1,000 declined from 11.4 to 9. During the same period, divorces have steadily increased from 25.1 per thousand in 1941, to 188.7 per thousand in 1974. Not only is the nuclear family being eroded, the national identity seems unable to grapple with the diversity of ethnic, religious, and cultural differences. Crysdale and Beattie (1977, p. 69) list ten major ethnic races and eight major religious orientations, and many of them seem to be pulling away or at conflict with one another, rather than working on integration of the diversity into an even more complete and valuable whole. Silverman and Teevan (1975) discuss the difficulties of gathering accurate data on the increase in violence and organized crime is on the upswing. As violence increases, so has our tolerance for it. One of the contributors to this acceptance is the media (LaMarsh, Royal

Commission on Violence, 1976). Coupled with these problems are those associated with strikes, economic downturns, unemployment, political dissatisfaction, and consumerism. Underlying these problem symptoms are a set of behaviors and attitudes that are clearly amenable to change through the educational system.

Leff (1978, p. 224) describes seven of these trends that underly the North American culture. We have not yet been able to move past the competitive, individualistic notion to that of interdependence and cooperation. Our social institutions seem to be largely dominated by the set of assumptions McGregor (1960) identified as "Theory X". This negative conception of human motivation has kept our focus on extrinsic reinforcers, rather than the intrinsic worth of the human being. Linear thinking about "systems of mutually essential interdependent parts" (Leff, 1978, p. 237), get in the way of cooperative behavior. While entirely inappropriate for a democracy, the doctrine of the divine right of kings does not seem to have been eliminated in men's minds, despite the 1688 revolution in England (Columbia Encyclopedia, 1963, p. 579; Hobbes, 1651). We are closely linked to the material success indicators, and this tends to move us in the direction of treating others as things, often in self-defeating ways. With many unquestioned assumptions directing our thinking, we often confuse means with ends. This leads to an acceptance of a method or technology as valuable in its own right, and this tends to influence us to miss the end result for which

it was originally established. The automobile becomes a status symbol, rather than a means of transportation, and our environment becomes increasingly polluted with cars being driven by single individuals when they were meant to hold four to six. This is typical of the inability that seems to grip us as we rush to exploit our natural resources, and each other, in our eagerness to enjoy immediate pleasure today.

These symptoms, and others not mentioned, seem to indicate a weighting on the negative side. The advances made in the past, and those to come, have not been mentioned because systems thinking demands problems be identified and dealt with so that the society will ensure its self-renewal. With this background, the output needed from the colleges by society is clear. We need aware, problem-solving individuals, with a longer time perspective, and the competence and skill to plan ahead for their own self-renewal as well as that of society's. The remaining chapters will attempt to demonstrate the need to move from reliance on extrinsic factors to the internal self-directed intrinsically motivated state. In deCharms' (1968, p. 269) words, it is necessary to be an "origin" rather than a "pawn". In today's world we need people who perceive they can help to solve problems rather than be defeated by them. We need people who can cooperate with others in solving these problems, yet retain their own uniqueness, and freedom of choice. This is very close to

the goals established earlier for the community college system (Ontario Department of Education, 1967) to utilize our human resources to the fullest possible degree, and thus ensure self-renewal of society. The question that remains is how this goal might be accomplished.

The key to the question of means to reach the student output goals was also foreseen in 1967 (Ontario Department of Education), and deserves repeating:

the key to our future clearly lies in research and development - in planning to anticipate and meet the demands of social and technological change through deliberate alteration of the educational structure. This will require research and experimentation, and a continuing evaluation of the old and new (p. 7).

Today this goal takes on new meaning and importance, as the colleges are now faced with the problem of devising means of effectively unleashing the maximum creativity of its staff to deal with the problems mentioned above. Because of the direct influence faculty can have on students, it is particularly important that their intrinsic motivation be unleashed, and they serve as models of effective human beings to their students. It is not enough to be a subject specialist, an entertainer, a preparer of packages for learning, or any of the traditional roles performed. What is needed now, is the kind of faculty that can inspire, instruct, and exemplify problem-solving ability, thinking skills, internal self-control, and all-round competence

coupled with high self-esteem. Such a teacher would more likely be an invitational teacher, as described by Purkey (1978),

All teachers send invitations from time to time, but those sent by invitational teachers differ in two important ways: First, such invitations are based on unconditional respect for the value, ability, and self-directing powers of students. Second, such invitations are communicated with special skills, polished to proficiency by sustained effort, practice, and experience, and backed up with a special sense of responsibility...seven skills of the invitational teacher: (1) reaching each student, (2) listening with care, (3) being real with students, (4) being real with oneself, (5) inviting good discipline, (6) handling rejection, and (7) inviting oneself (p. 45).

Questions were raised at the beginning of this chapter on the function and the value of education. The conclusion was drawn that it is valued because of its ability to provide the society with a continuous input of effective thinkers and problem solvers, to reverse entropy. In this way, education performs the valuable adaptive function of society, in liberating individuals from dogma and prejudice, and freeing them to work together with others to balance the opposites of continuity and change, and conservation and innovation. It is through the force of individual growth and development that society may become self-renewing.

The goals established for community colleges in Ontario were reviewed, the progress toward these goals assessed, and suggestions made on the current challenge

facing the community college system. It was pointed out that the colleges are at a crucial point in their development. They have gained acceptance for their role, and are now established. The next challenge is even a more important one, and may be even harder to attain because of the strong forces for control and stability being exerted. Whether the colleges will be able to meet the next challenge of full development of the individual's potential through increased competence, effective problem-solving skills, and awareness of the world, or they fall back into complacency, will depend on their success at building an adaptation to their own internal organization. The creation of an interdependent, mutually supportive climate for innovation, yet one that also balances the need for stability, was suggested as a way to release the vital energy force available in students, teachers, administrators, and staff.

The thesis to be developed in subsequent chapters, is that intrinsically motivated teachers are more likely to have the qualities necessary to encourage the student outcomes the society now needs. It follows, that if college administrators want to see these outcomes developed, they will look for means to keep alive the intrinsic motivation in faculty. The remainder of this thesis will be directed toward explicating this goal.

In chapter three, motivation will be considered in a "systems" context. The human being will be viewed as a

complex, living, dynamic system of four independent, yet interdependent subsystems which function together through cognitive control. Each of the major systems will be explored, with special reference to their effect on the motivational-emotional subsystem. This latter system will be considered from the perspective of intrinsic motivation, which will be defined, the research reviewed, the physical structure described, and an explanation offered for the development and operation of intrinsic motivation. The current difficulties in defining the construct in operational terms will also be covered, and the available instrumentation will be listed. An argument will then be made for the value of intrinsic motivation to the living system, and the need for intrinsically motivated faculty.

CHAPTER III

INTRINSIC MOTIVATION

Motivation in a "Systems" Context

The person is at the centre of any social system. Thus, individual motivation, the human being's energizer, becomes an important concept to be able to describe, explain, and predict. The attempt to discover man's nature has occupied the thoughts and activities of philosopher and scientist alike for as long as recorded history. The success rate, however, has not been as impressive. Considerable confusion and fragmentation still exist on this important topic. Like the analogy of the blind men who felt different parts of the elephant, each thought they had encountered a separate and distinct animal. The human being, however, is more than the limited description of separate parts and functions can supply. The human being is more than even a sum of these parts, however accurately described and empirically tested. A more global and integrated description and explanation of man is needed which builds on the separate theoretical and empirical investigations that currently seem to be moving in separate directions, and as Holden (1971) indicated, seem to be getting farther apart, rather than closer together.

Human motivation, the wellspring of action, can best be understood in a systems context. One needs more than pure

energy provided by motives and emotion. The human being characteristically is a goal seeker who attempts to explain and control the forces in the larger environmental system. This gives purpose and direction to individual and group action, and meaning to existence. Pribram (1971), a systems neuropsychologist, suggested a direction that will serve as a focal point for the conception of motivation described in this chapter.

We have thus come to a point where the focus of interest must shift from the modifications of the behavior of organisms by their environments to the modifications of environments by the consistent behaviors, the performances and achievements, of organisms (p. 302).

The conception of the human being offered in the following pages will be one that attempts to draw together apparently diverse views on the nature of man, as well as complementary ones. The individual will be conceived as a dynamic, living subsystem of the larger environment, yet as a complete system composed of still smaller subsystems. It will also be a picture of the person transacting with the larger environmental system in a purposeful, thinking, goal-directed manner, in the fulfillment of an intrinsically motivated need structure.

The systems model of educational transactions in figure 3-1 indicates the areas of focus for this chapter. As the title suggests, intrinsic motivation will be explored from a variety of perspectives. While the human being will be viewed as a four part system within a larger environmental

system, the motivational-emotional subsystem will be of major concern. The social, physical, and cognitive subsystems will be considered from their impact on motivation, and on the integrated human system. A major assumption will be the perception of intrinsic motivation as the natural ongoing motivated state of the person, and drives and emotions serving as interrupt mechanisms. Intrinsic motivation is shown to be influenced internally by the person, while lower-order drives and emotions can be influenced externally. The interaction is much more complex than can be shown in the diagram, but this will be explored in the remainder of the chapter.

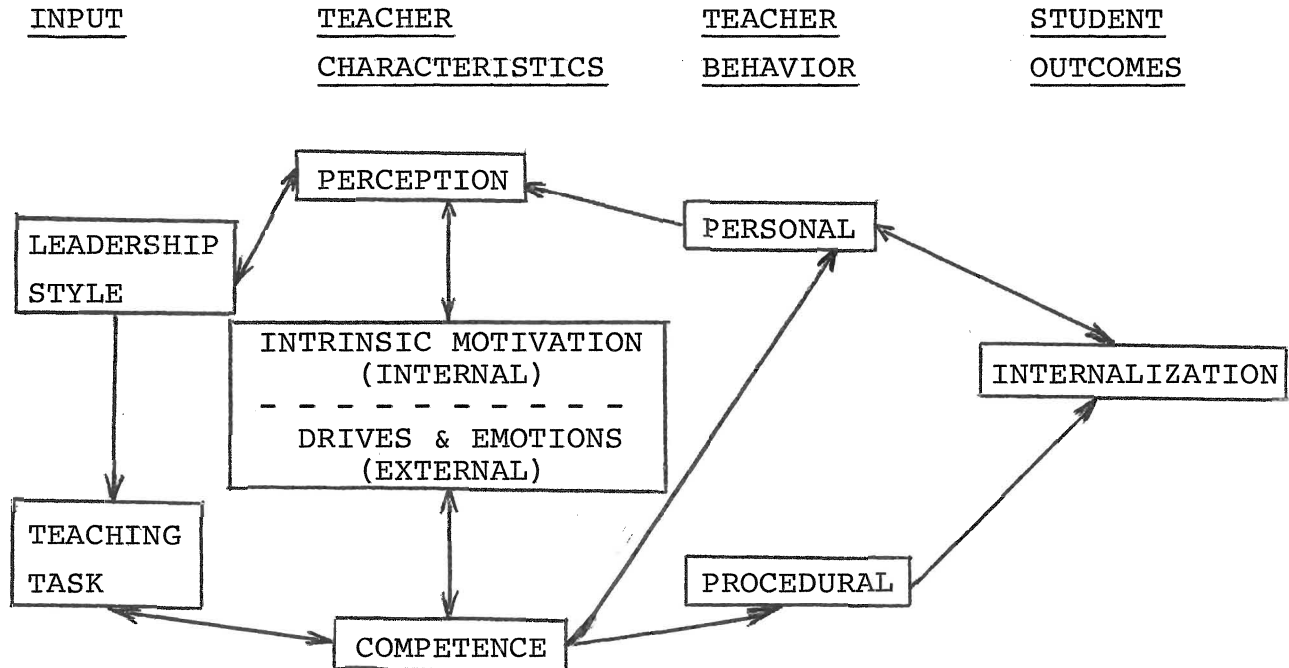


Figure 3-1. Motivation in a systems model of educational transactions.

A Historical Perspective

The nature of man has been conceived historically in limited ways. Thinkers such as Democritus (400 B.C.) reduced man to a collection of atoms, and the hedonists saw the human being as driven to avoid pain and seek pleasure. This latter group postulated that man was basically evil and selfish, and needed to be controlled. Machiavelli (1532) set out this pessimistic view of man in the form of advice to rulers on how to manipulate their subjects. This hedonistic line of reasoning was continued by Hobbes (1650 and 1651) who claimed that man was by nature selfish and individualistic, and was motivated by fear and hunger. Like Machiavelli, he considered the helplessness of human beings justified despotic governments. A modified version of this pleasure-pain principle was continued by Spencer (1855), who developed an instinct theory that became known as evolutionary associationism. He popularized the notion that the associations repeated by individuals will be transmitted to future generations instinctively, and maintained that schooling was a means to adjust the person to the environment. His version of man's nature later appeared in Thorndikes' (1911) law of effect, where the person is expected to repeat acts that have favourable consequences, and avoid those that have unfavourable consequences. The notion of instinctive behavior was taken a step further by Freud (1915), when he added the principle of unconscious motivation. Now man was not only seen to be acting out his

life and death instincts, but the forces were not consciously known even to the individual.

The cognitive-systems view of man postulated in this chapter is also a different conception of man than that described by the associationists. Their human being, according to Locke (1690), arrives on the scene with a blank slate, ready for experience to write on it. He was the first to use the term association, but not the first to state its three laws of contiguity, similarity, and contrast. It was Aristotle (384-323 B.C.) who developed these ideas, but Watson (1913) who forced conscious experience, thoughts, and feelings into the "black box". He was the first to use the term behaviorism, and to argue for an objective science of behavior. Much of the popularity of the objective study of behavior, and the view that the human being operates in much the same way as a machine is a direct result of the efforts of Watson, who, as Hill (1971) indicates, "turned this sort of study onto a national movement and philosophy" (p. 33). This tradition, in the United States, is carried on today by Skinner (1953), who perceives this scientific conception of human behavior at odds with the idea of personal freedom. Skinner's writings discount the inner world of experience, and argue that they stand in the way of his notion of a truly scientific technology of behavior. His position was made clear in a pre-publication of his book called Beyond Freedom and Dignity (1971b). This introduction was omitted when the book was

published, but it accurately describes Skinner's (1971b) stand on his version of autonomous man.

As the interaction between organism and environment has come to be understood, however, functions once assigned to states of mind, feelings and traits are beginning to be traced to accessible conditions, and a technology of behavior may therefore become available. It will not solve our problems, however, until it replaces traditional prescientific views, and these are strongly entrenched. Freedom and dignity illustrate the difficulty. They are the possessions of the autonomous man of traditional theory, and they are essential to practices in which a person is held responsible for his conduct and given credit for his achievement. A scientific analysis shifts both the responsibility and the achievement to the environment (Skinner, 1971a, p. 37).

Skinner received his Ph.D. at Harvard University in 1931, and then spent five post-doctoral years working with the experimental biologist W.J. Crozier, who he said "resented the nervous system" (Esper, 1964, p. 273). This was likely the historical source of Skinner's notion of the "empty organism" (Esper, 1964, p. 315). It also may explain why his version of the autonomous personality no longer exists, but it establishes a "straw man" that he can attack and claim stands in the way of his "real" science. A careful search for the substance behind Skinner's (1971) idea of autonomous man reveals a subjective mental construct that lacks objective operational definitions, and seems to be limited to psychoanalytic versions, and early notions of man that Esper (1964, chap. 2) would describe as "Magic and Animism". While the term remains the same as the one Skinner learned about in his undergraduate years, it has since been used to describe a far

different conception of man, based on a wealth of empirical data.

Apparently the environment has not been able to supply Skinner (1971b) with the data that has accumulated from the investigations of neuropsychologists, social psychologists, cognitive psychologists, humanistic psychologists, and an equal number of specialists in other disciplines such as sociology, medicine, engineering, anthropology, chemistry, physics, and biology. This can be readily operationalized by noting the references throughout his book and in the bibliography. Many references are made to the author's earlier books; to historical thinkers such as Descartes (1662); to literary greats such as Kipling, and Dostoevsky (1864); to philosophers such as Socrates; to commentators such as Walter Lippmann; to the legal profession (Justice Cardozo, 1937); to Biblical injunction (Matt. 18:8); to Alexis de Tocqueville (1863); and to Freud (1915). As to the objective science that Skinner (1971a,b) claims to represent, only a token note is made in the form of a single reference to the review of a book called Brain and Conscious Experience. From this single review of one source, Skinner's (1971b) comment in the text became "Many physiologists regard themselves as looking for the "physiological correlates" of mental events" (p. 186). Two brief references were made to Maslow, who represents the humanistic school of psychology, and these were for the purpose of defining valueness, and to misquote Maslow out of context, as supporting the notion that

"What is now under attack" said Maslow, "is the "being" of man" (p. 191). This approach of Skinner's is an example of "closed system" thinking that does not consider new empirical evidence or opposing points of view. The unfortunate part is that extending the concept of conditioning that has validity at one level, to a higher level where it does not apply, casts doubt on the concept itself, or encourages people to take easy answers to complex questions and place responsibility elsewhere. Systems thinking, instead, looks for a multiplicity of causes for complex behavior, and attempts to explain the presence and functioning of actions such as the inner striving and learning that proceeds without reinforcement from the outside environment. Systems thinking attempts to avoid the trap of "the one best way" which Taylor (1911), who was known for developing scientific management, fell into.

Still another group of theories needs consideration before the cognitive systems version of man's nature is covered. The neobehavioristic drive reduction theory of Woodworth (1918), who identified the term drive, Cannon (1939), who introduced the idea of homeostasis (organisms are motivated to return to equilibrium by their internal drives), and finally brought together by Hull (1943). This theory was a combination of the psychoanalytic idea of an internal drive, and the behavioristic notion of external reward. The person is driven by strong internal drives, such as the homeostatic needs of hunger, to reduce the drive through encounters with situations

in the environment that will return the person to the homeostatic state. Drive theory also fails as a complete explanation of behavior. It does not come to grips with the evidence that points to energy and persistence continuing despite the absence of external stimuli, nor does it leave room for creative human behavior or rational thought (see Hunt, 1971, pp. 2-5). The trend to restricting explanations of behavior to external causes, however, seems to be on the wane. As Bolles (1974) indicated

In recent years there has indeed been a decline in the mechanistic philosophy and there has surely also been a resurgence of interest in cognitive psychology...psychology has always been more or less cognitive...So psychology's yearnings to be united with the rest of science by becoming mechanistic was only an episode, a brief interlude. It was fortunately, never more than that ...a psychologist is a scientist by virtue of his systematic use of the empirical method and not because he abandons mentalistic phenomena, or turns away from cognitive processes (pp. 1,2).

The more positive, yet still limited version of man's nature is provided by humanistic approaches. Maslow (1971) changed the notion of drive to need, added a hierarchy of more complex needs, and attempted to fuse the world of science and the world of value. He conceived the master motive postulated by Goldstein (1939, p. 305), as occurring when the person had satisfied basic needs. This master need of self-actualization gave us an understanding of what it might be like at full humanness and suggested a definition of mental health. On the debit side, it left us with a circular explanation of

creative human behavior, as it postulated that man creates because he is creative. This was only one of many ideas Maslow (1971) left for future scientists to test. His main contribution came in the way he pointed out areas of investigation that would test our intellect and our resources. His positive attitude, ideas on transcendence and synergy, allowed for an open, living system approach exemplified in the following quotation:

Most of what I have presented here is based on clinical evidence and experience, and is therefore not nearly as reliable as evidence from controlled experimentation. However, it is mostly cast in such a form as to be susceptible of experimental confirming or disconfirming (Maslow, 1971, p. 390).

In summary, most of the approaches reviewed have developed only partial answers to the question of man's nature. Some place the emphasis on the influence of the environment, and others the instinctive drives or needs within the person. Some see the person as attempting to reduce drives, and achieve a steady state. Other approaches focus on the person as seeking challenge, and becoming self-actualized. Still others view the person as a neutral factor being influenced by external control. This results in questions still needing answers. What starts and stops action? How is activity energized? Is the person motivated to approach or withdraw from challenging situations? The answers to these questions have been offered by a number of researchers and theorists

and yet we are still left with incomplete answers. As Guilford (1965) indicated,

We come out with such conclusions as those beginning with "All motivation is homeostasis." All motivation is drive; all motivation is homeostasis; all motivation is activation level; all motivation is the hedonic aspect of behavior; all motivation is self-actualization; and so on. Such generalizations also reflect a common overemphasis on the urge for parsimony, to the extent that we attempt to find the simplest possible explanation in terms of a single key concept. Too many psychologists, like the wise men of old, are apparently in search of the philosopher's stone (pp. 313-332).

What seems to be lost according to the above description, is the holistic notion of man (Smuts, 1926) that conceives the person as a total integrated whole, in transaction with the larger environment, of which the person is an active and dynamic part. The current picture of the human living system has been articulated by Miller (1978), who has developed a conception of the human being as an energy system of interdependent parts. These units are arranged in a hierarchy from cells to organs, organisms, groups, organizations, and societies. Each lower level system is part of a higher level system, and each living system has the common characteristics described in chapter one. This is not simply a system in equilibrium, as that kind of system is relatively closed, and loses structure when responding to external change. It is instead, the kind of open system described by von Bertalanffy (1956), that is part of an ever-widening system. The

implications of viewing the world from a systems perspective is exemplified by the interdisciplinary symposium held at the State University of New York, and described in Laszlo (1972b). Contributors to this symposium came from such diverse disciplines as biology, mathematics, physiology, economics, communications, psychiatry, psychology, education, and ecology. A major purpose of this gathering was the integration of scientific knowledge within a general systems framework. It was a call for systematic, planned approaches to the synthesis of knowledge towards the higher goals of society, and away from the parochial in-fighting so characteristic of some of the fads and narrow answers to man's problems, that seem to gain instant popular appeal, because they give the illusion of having the correct answer. Scientific knowledge is, instead, based on a gradual, evolving, building process. It takes effort and dedication, and careful attention to detail. It takes tolerance and listening skill, and the ability to reflect carefully upon the ideas and empirical research of fellow scientists. The success of such an undertaking is not measured in the royalties from a shallow best seller that purports to have all the answers, but from the satisfaction that comes from actions that add to man's cumulative knowledge of the universe and reality.

Such progress can be measured in the increasing evidence that moves the concerns to broader and broader issues, and gathers together more and more scientists to share what they

have discovered for the world. Recently, Laszlo (1977) was able to publish the results of such an effort in his report of The Club of Rome's deliberations on goals for mankind. His goal is to chart an intelligent course into new territories. The Club of Rome

is a body concerned with the well-being of mankind as a whole, is future-oriented in its thinking and must necessarily take into account the incongruities of the human condition, its values and goals, both actual and desirable, if the species is to survive (Laszlo, 1977, p. vii).

Laszlo's (1977) book is the report of an ambitious undertaking that spans the barriers of language, culture, and geographic boundaries. It is the report of "some one hundred thirty individuals, from many disciplines and from all parts of the world" (p. xvii). This International Project Team established goals for the world, in diverse areas of concern. As Laszlo (1977) stated,

In our world of interdependence, the goals on which nations and peoples act assume crucial importance. If these are unrealistic, narrow, and shortsighted, world problems will lead to catastrophes, and amid mounting tensions the arms of ultimate destruction could finally come into use. If, on the other hand, governments, peoples, corporations, and organizations adopt realistic and farsighted goals, new horizons of need fulfillment and peace can open for the world community (p. xiv).

He further indicated the responsibility for each individual to "play a meaningful and important role" (Laszlo, 1977, p. xiv). If individuals are to measure up to this

responsibility, they will require the knowledge and skill described in chapter two, and have the energy provided by intrinsic motivation described in this chapter.

A systems science is free to probe for answers at any level. The focus can be on the small system represented by the single cell, the collection of cells in an organ, the complete person, the family, the community, or the nation. This approach does not limit the explanation of man's nature, and confine or limit the possibilities and potential of the human being to any predetermined conception of reality. Unlike the physicist, who views man as a collection of atoms or quarks, the chemist, who may perceive man as a chemical laboratory, the biologist, who sees man as a collection of tissue and organs, the psychoanalytic psychologist who conceives man as driven by primitive and negative instincts, or the behavioristic psychologist who maintains that the person is only the sum of his past or present reinforcement history, the systems scientist looks for relationships and meaning unrestricted to artificial limitations imposed by subject boundaries, or the shackles of "the one right way", that have held human creative imagination prisoner. Each new conception of human nature adds to existing conceptions and brings us closer to understanding our own complexity. As Combs (1976) reminds us,

Each way of looking at the person and his functioning has advantages and disadvantages for dealing with different problems (p. 404).

It is within this context that the next section will attempt to describe a view of the human being as a complex, living, dynamic system of four independent, yet interdependent subsystems that function by cognitive control as integrated components.

A Systems View of the Person

The person's view of the world is only as accurate as the mental models he or she has acquired. At the same time, we are reminded by Land (1973), of the proliferation of theories and bits of data that appear contradictory and ambiguous when he said, "Like a thirsty man in the middle of an ocean, we are surrounded with knowledge in a form we cannot digest" (p. 5). If this reasoning is followed through, one can visualize how easy it is for individuals to develop the many competing theories of human behavior that Land talks of. The individual seeks to understand the perceptual field within and through him (Life Space Concept, Lewin, 1951). In the process, he develops a unique and personal way of perceiving the environment (Combs, 1976, p. 19).

This satisfies the individual's need to know but not the requirement for accurate models of the world. This is especially important when we consider the need for perceptual accuracy in viewing others. In his recent synthesis of brain research, Gevarter (1976) succinctly stated the implications when he indicated,

The way we view other people is in large measure a result of our mental models of human motivation that we all carry. If our mental models of motivation shift, then so will the way we view others, our notion of what is right and wrong, and what is the proper way to deal with people (p. 308).

Support for this position comes from a variety of studies of perception and from research on brain function. Keen (1975, p. 19) emphasizes the importance of the structure of experience in the meaning of events; Elkind (1974, p. 92) offers the empirical evidence of the human mind being able to create order from disorder; Bruner (1973, p. 38) describes how the individual builds mental models that maximize certainty and minimize surprise, even though this results in a distortion of the real world, and omits data necessary for effective action based on knowledge of the available alternative courses of action. In his brain research and the development of the triune brain concept, MacLean (1973, p. 22) describes the need to acquire self-knowledge that will allow accommodation of the much slower primitive reptilian brain in the human being. More will be said later about his triune concept of the brain, and its force as a conceptual organizer to release man's human qualities. Nord (1972, p. 19), Miller, et.al., (1960), and Piaget (1959) also offer evidence on the importance of the person's perception of the external world, and how the "schemata" or complex codes are built up in the brain.

It is against this background that the human being will be conceptualized as a four part system operating and trans-

acting within and with the larger environmental system. The purpose of viewing the human being, first in this way, is to attempt to point out large subsystems that subsume the other smaller subsystems, yet enable us to picture how the person develops and transacts with the larger environmental system. A more precise conceptualization, based on the triune brain concept (MacLean, 1973) will follow.

The human being might be visualized schematically by representing the human system as four overlapping circles that intersect with a larger surrounding circle. The larger circle is the environmental system, and the intersection signifies the dynamic, interrelated connection the human being has with the environment. The four overlapping smaller circles symbolize social, emotional-motivational, physical, and cognitive subsystems. All subsystems might be further visualized as being independent yet also transacting with each other in an interdependent way. Integration and coordination are maintained by the cognitive subsystem. In this way, the natural human system transacts with purposeful growth encounters with each of its subsystems, and with the surrounding environmental system.

The Physical Subsystem

As Land (1973) indicates, "Human behavior has naturally evolved from biological behavior" (p. 17), and this evolution is growth-directed activity with the person in a constant

state of becoming. The physical subsystem is the first one to show its presence and announce the arrival of another human being. In this way, the human being enters the world of other systems and subsystems as a single cell. From this small beginning, the individual is destined to increase in complexity and develop the unique characteristics and species-specific traits the genetic code has predetermined. Even at this level, the independent yet interdependent nature of the becoming person can be detected in the living cell. As Land (1973) describes the process,

Man and cell perform identical acts of synthesis, one biologically, the other psychologically. They first seek nutrition, physical or mental. Second, they ingest what they can use, discriminating among materials through screening processes. Third, after ingestion, they digest the material, breaking it down into smaller units. Fourth, this material is then reassembled for use in self-extension. Finally, this total act of growth is reacted to by the environment, and both the cell and the man modify their subsequent behavior based on this response or "feedback" from the environment (p. 9).

From a state of dependence, incompetence, and primitive structure, the person's human destiny is to move towards independence, interdependence, competence, and complexity. This growth is accomplished in three ways. Land (1973, p. 11) describes these as "accretive, replicative, and mutual." The cell first extends its boundaries and gets larger. This is followed by the cell producing similar cells, which then ultimately cooperate in unison to form the various organs and biological systems in the body. Even at this stage, in

early formation of the fetus, the person transacts with the environment. As the child grows, these transactions become increasingly more complex and culminate in the person being able to modify the environment. Throughout this self-realization process the individual alternates between the homeostatic drive to relieve tension and maintain equilibrium, and the heterostatic drive to explore, to grow, to learn, to satisfy curiosity, and to "become". The homeostatic drive identified by Cannon (1939) is well known and commonly accepted. The same cannot be said for the heterostatic described by Menninger (1963, p. 84) and others, yet it is the natural basis of intrinsic motivation. These two forces of stability and change were considered in relation to the college, in chapter two. It is imperative both for the individual and the organization that this natural, seeking, heterostatic behavior not be overwhelmed by those moving toward its extinction, as it is here that the energy to combat entropy is found. Bernard (1978) describes the polarity in this way: "Homeostasis is preservative, or conservative. Heterostasis is expansive and exploratory" (p. 103). Maslow (1968, p. 46) considered these two extremes as forces that move the person toward safety or toward the enhancement of growth. The heterostatic drive is found in abundance in early life, yet our culture often seems to inhibit and discourage its expression. In other words, the individual's maturation process, the physical unfolding

plan, can be modified, transformed or enhanced, by the social system. This subsystem will be considered next.

The Social-Environmental Subsystem

The human infant is the most dependent of all animals in the animal kingdom. Competence develops through growthful encounters, as the process of maturation presents the individual with an increasingly complex set of structures. The environment, in the form of parental care, nutrition, stimulation, cultural norms, and opportunities for exploration at the right time, influences all the person's systems. The transactions are crucial to the person's survival from the stage of conception onwards. The effects of alcohol, smoking mothers, drugs, lack of oxygen, and the mother's physical and emotional state have been well-documented.

Much of the recent research has begun to converge on the question of what can be done through the influence of the external environment to increase overall competence in the person's subsystems. The goal is directed at determining what can be done to release the individual's full potential and their heterostatic behavior through environmental influences. Leboyer (1975) has developed a method to reduce birth trauma. In experiments conducted by Dennis and Sayegh (1965), infants who were lifted, carried, given interesting toys, and a chance to experience things, developed four times as fast as they had before the experiment. According to

Fraiberg (1967) and Hunt (1968) the physical, intellectual, and emotional development of infants is affected by activities such as fondling, petting, and talking with them. Hanson (1975) reports that consistent and stable home environments have a cumulative beneficial effect on young children's IQs. The desire to use this intelligence also depends upon the influence of social factors as they effect motivation (Butler, 1970; Kagan, 1972). Social rewards of approval are important in the early years (Siegel, et.al., 1976), and conditioning is important in acquiring adaptive behavior and the concept of self. In other words, if the child receives enough care and stimulation during the early years (Coopersmith, 1967) he or she will acquire healthy self-esteem and tend to be more competent and heterostatic in their future transactions with the environment. The early stage of human development and the influence of the social system is summarized by Bruner (1973):

The human infant is, above all else, helpless and reliant upon caretaking by a mother or somebody standing in that role. There is enormous reliance upon adequate social relationships if the child is to get on with the kind of skill development we have been considering. This is the sort of diffuse, affective, yet critical support the child needs in order to thrive. Without it, sustained intention-directed behavior flags, and we have an infant failing to thrive (p. 304).

An abundance of studies exist on the importance of physical contact, the mother's sensitivity to the baby's signals, the development of feelings of mutual delight, and

the creation of an environment where the child develops feelings of self-control, in the development of competence (Ainsworth & Wittig, 1972; Hunt, 1961; Newton & Levin, 1968; Skeels, 1966; White, 1973). There is general agreement that stimulation and adequate care are necessary in early life for healthy development. While the first two years are generally agreed to be very important, the influence of the environment and significant others does not stop at age two. As Biehler (1976) indicates,

In the short time between birth and the second birthday, children move from total dependency to the point where they are capable of an impressive amount of self-directed behavior... All of these skills, abilities, and tendencies infuse two-year-olds with a sense of power and independence (p. 343).

It is this autonomy that may get the child into trouble with the adults in his world, as he is helped to learn that it is necessary to move from self-centered dependence to independent co-existence. Like many of the stages that follow, this is a point where the child may begin to learn that his actions make a difference, or he learns that others control reinforcing events in the environment, and securing these is not related to his actions (Seligman, 1973, p. 44). Numerous opportunities occur throughout life for this important determination to be made, and significant people in our life have an important part to play in helping to bring this about.

The influence of these significant others has been described in a number of developmental stage models. Havighurst (1952) identified a series of tasks that seem to be necessary to complete at various ages for the person to mature. This was followed by Erikson (1968) who identified eight psychosocial stages of life. He considered the social, cultural, and historical context, within which the person could resolve a bipolar conflict in either positive or negative ways. He considers the movement outward from the initial security of mother to increasingly varied environments as desirable. Like Loevinger (1966), he stresses the development of autonomy and the strength of the person's rational ego in being able to resolve the many conflicts and problems the individual must face. Moral development has been studied by Kohlberg (1968), who has identified three stages an individual will pass through if given problems and conflicts to resolve. His focus is the active thinking engaged in by the person as the environment supplies the stimulus.

While not considered as developmental stages, the behavioristic theory of conditioning stresses the importance of the environment in shaping behavior. Originally conceived in the laboratory, in experimentation with animals (Hull, 1943; Pavlov, 1927; Skinner, 1953; Watson, 1913), the "black box" concept of the person could not explain the research findings on human development. Recently, associationistic

theorists have introduced two concepts that offer explanations for these intervening events. The first one is the "mediator". This is conceived by Kendler (1974) as an intervening event, as a plan by Mischel (1976), and as a perceptual bias (Odom, 1977). The other concept (Gagne, 1977) conceives various levels of learning, with each category being slightly more complex than the last. The complexity builds up through simple stimulus-response changes, rather than through maturation.

Another behaviorist (Bandura, 1963) emphasized the impact of imitation and identification in social learning. This learning, modelled after observing others, seems to occur without an external tangible reward. Schachter and Singer (1962) in experimenting with various environmental conditions found that a hostile environment produced hostile feelings, and a friendly environment produced friendly feelings. When they added adrenalin to their subjects, both conditions were enhanced. These findings seem to underline the importance of all systems operating together, rather than behavior resulting from any one system. At the same time, research completed to this date seems to point toward the large impact the environment has on the person, in the form of parents, peers, authority figures, and an ever-widening range of social relationships and environmental influences.

Starting at the early stages, under conditions of

relative safety (White, 1959), the individual is more likely to exhibit exploratory, curious, playful behavior. Under continuing conditions of parent interest and involvement, emotional intensity, family interaction, and democratic parental authority, three forms of autonomy are likely to develop, according to Douvan and Adelson (1966). The person begins to develop emotional maturity as infantile family ties are cast off. Behavior becomes more sophisticated as the person is allowed to take more responsibility for his actions, and a relativistic value system becomes evident. As the child becomes older, reasoning and discussion in discipline are effective in developing internalized control (Felker, 1974; Leizer & Rogers, 1974). Continuing this approach, teachers who are skilled at invitational teaching (Purkey, 1978) will encourage feelings of responsibility, capability, and high self-esteem. In other words, the social environment is an important influence in the development of internal locus-of-control (Phares, 1976). According to Seligman's research (1973), the actions of parents and "significant others" can encourage the person to learn to be helpless, or to take control of their own destiny. Nor is this limited to childhood environmental influences. Perry (1970) followed the progress of Harvard students for four years, to determine if the environment at Harvard made a difference on their intellectual development. He found that a similar environment to that described above affected students positively.

College students need models they can emulate, but more important, they need "the experience of community with them" (p. 215). While his study suggested some ways to influence growth in intellectual skill, he also emphasized the need for additional answers, when he said,

The most pressing problem emerging from our study is therefore the question: What environmental sustenance most supports students in the choice to use their competence to orient themselves through commitments - as opposed to using it to establish a non responsible alienation (p. 213)?

College students are in the process of finding their social role and occupational identity (Erikson, 1968). If this identity is accomplished, they will be able to accept themselves and move towards developing intimacy with others. If this open orientation toward others is not achieved, isolation and often alienation result. This establishment of a meaningful identity has been made difficult for a number of reasons. Home and school discipline has been relaxed, and this has prompted an unusual dependence on peers and a resulting trend to external locus of control. Changes in the structure of the family, an increased number of divorces, both parents working, a decline in the concept of the extended family, and isolation in one-class neighbourhoods are cited by Bronfenbrenner (1974) as factors that increase alienation. In addition, their moves toward independence and the development of an identity have been frustrated by the long period of dependence, and the

difficulty of obtaining employment in today's marketplace. Fortunately, however, another system is ready to help them at this stage of development. They are now able to use their cerebral cortex to plan, coordinate, analyze, and synthesize incoming data from the environment, and thereby develop strategies to reach their goals. This rational power will now be examined, as the development of the cognitive subsystem is considered.

The Cognitive Subsystem

The cognitive system is the master, coordinating control for all other systems. A single thought, originating in the cerebral cortex, is enough to initiate a wide variety of behaviors. The mind of man is not only the major system that exemplifies the evolution of the human being, it is one of the few remaining frontiers left for man to explore. Ferguson (1973) has captured part of the essence of the brain's complexity and open system characteristics when describing creativity. He said,

The view of creativity as a nonintellectual activity fails to take into account the dynamic, unitary, and coherent nature of the brain. Emotion and intellect, freedom and discipline, reason and intuition, the precise and the gossamer, primary and secondary processes, chaos and order - all of these apparent opposites can exist in creative harmony in the human brain (p. 295).

Evidence of this complexity and control can easily be deduced

from the many longitudinal studies referred to by Smith (1978, p. 33) of those who had experiences which seemed damaging in early life, yet actually turned out to be maturing influences. Such famous individuals as Einstein (Clark, 1971) and Edison are classic examples of the great capacity of the human being to overcome the negative influences of the environment. They also exhibit the creative characteristics of living systems described by Poulson (1975).

Creativity is usually associated with personal characteristics such as openness to stimuli, independence in attitudes and social behavior, dominance, self-acceptance, intuitiveness, flexibility, and problem-solving ability... persons able to manifest creative behavior are more productive, more able to cope with and manipulate their environment, and therefore, happier human beings (p. 131).

The complexity and creativity of the brain expresses itself in many contradictory ways. At one extreme can be found A. H. Maslow (1971) who devoted his life to the understanding of the potential for good that exists in the human being. At the other end one can find examples such as that of Jim Jones (Nightmare in Jonestown, 1978, p. 10) who led 900 men, women, and children to commit a ritual suicide. On the surface, actions like these defy explanation. Our current understanding of the central nervous system, however primitive, helps us to make sense of these actions, and many others. It also helps us to develop models and methods

that aid in harnessing what some have called "horses in our heads" (Calder, 1975). Such a concept is MacLean's (1973) notion of the "Triune Brain".

The Triune Brain

Every cell in our body can be described as intelligent. Throughout our body, a massive network of interconnected cells pick up sensations from the outside and the inside. This information is stored, used, and operated upon in the central nervous system, where the data is selected, organized, and interpreted by means of a number of complex operations. Man is at the centre of his universe because of this complex system, and the brain is at the core of man's being.

One useful way to view the human brain is from the perspective offered by MacLean's (1973) Triune Brain Concept. While his version may be controversial and speculative, it is based on an abundance of empirical research and is supported by a number of theoreticians and researchers (Gevarter, 1976, 1977; Pearce, 1977; Pribram, 1971; Smythies, 1970). It also is a conception that makes it possible to explain behavior that appears contradictory, and to visualize a progression of intellectual growth.

According to MacLean (1973, 1975) the human being has evolved three brains. These three brains, which can operate separately and together, "are markedly different in chemistry and structure and in an evolutionary sense eons apart"

(MacLean, 1975, p. 216). MacLean (1973, p. 9) characterizes them as Reptilian, Paleomammalian and Neomammalian (see figure 3-2). Before describing the operation of each of these three formations, it may be useful to review the path MacLean took in reaching these conclusions. In his own words:

For the past twenty-five years, my research has been primarily concerned with the identifying and analyzing forebrain mechanisms underlying prosematic forms of behavior which on phylogenetic and clinical grounds might be inferred to represent expressions of "paleopsychic" processes. In this work, I have taken a comparative evolutionary approach which has the advantage that it allows one to telescope millions of years into a span that can be seen all at once, and as in plotting a curve makes it possible to see trends that would not otherwise be apparent. It also shows the usefulness of research on animals for obtaining insights into brain mechanisms underlying human prosematic behavior (MacLean, 1975, p. 216).

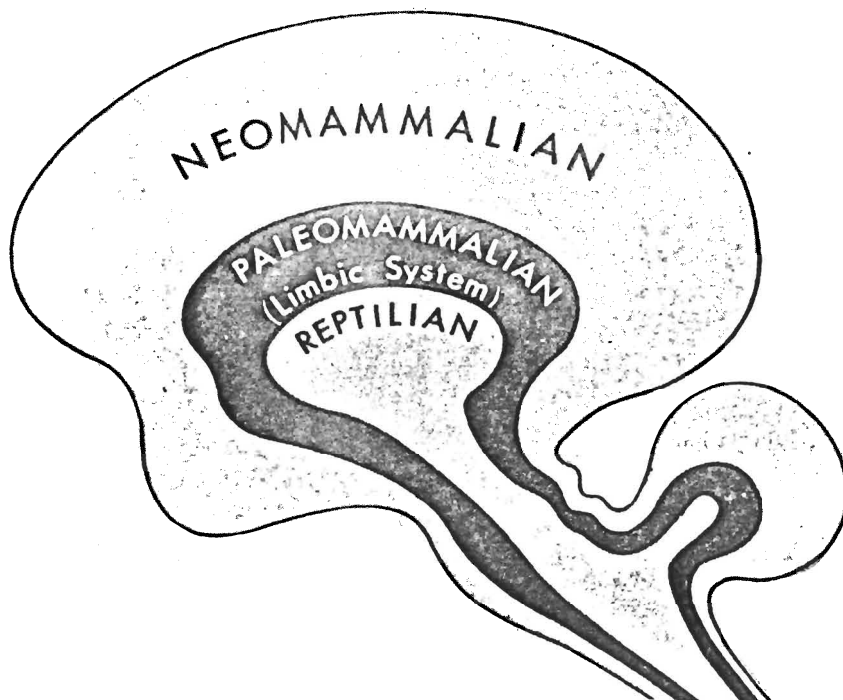


Figure 3-2. Diagram of the triune brain (taken from MacLean, 1973, p. 9).

This research has led MacLean (1973) to the conclusion that the oldest reptilian brain is composed of the upper brainstem, much of the reticular system, and the midbrain. It functions according to a rigid schedule in a reflexive way. Perhaps this species-specific routine behavior that tends to follow proven pathways from the past has had survival value. The question that might currently be considered is, what are the present and future needs, and to what extent will the ritualistic reptilian brain response mitigate against these needs unless it is harnessed by the other two. The old reptilian brain was perfected 200 to 300 million years ago (Pearce, 1977, p. 5). This ancestral brain does not have the neural mechanisms needed for learning to cope with new situations (MacLean, 1964, p. 12), and while it is associated with basic human ways of acting, it is relatively unchangeable. The hypothesis that the two lower brains originated from more primitive animal functions seems to be supported by studies by Parent and Olivier (1970). They stained comparable structures in reptiles and birds and found a similar intense staining. This comparative approach has been replicated by others in different species.

It was presumed that the very rudimentary cortex of the reptilian brain evolved a "thinking cap" that may be compared to "a crude radar screen, providing the animal a better means of viewing the environment and learning to survive" (MacLean, 1975, p. 217). This Paleomammalian brain gives

the person a better picture for adapting to its internal and external environment than that provided by the reptilian brain. It seems to function on an animalistic level. It is this area that contains the limbic system and the hypothalamus. Energizers such as emotions and lower-order drives for self-preservation (MacLean, 1973, p. 14) function from this part. These sections seem to comprise the old cortex, but it is a very primitive one, in that it does not think or reason like the neocortex. The Paleomammalian brain is especially influential in the early years, as the third brain does not become completely connected and functional until the late teenage period. As a result, old brain data seems to be learned unconsciously through the process of conditioning (Smythies, 1970, p. 113). Because the person cannot reason and critically analyze incoming data during this period, models of the world are acquired that are likely inaccurate, and are contaminated by emotions and values, yet they have been located there without the person's knowledge.

Perhaps this is why a person's value system, rules, dogma, ideology, and notions of the world and of the self seem to be inherited rather than acquired. These old brain emotions, values, and models of the world seem to act as a filter that distorts conclusions reasoned through by the neocortex, in the third brain. To add to man's problems in loosening these old and often inaccurate ways of relating to the world, and to himself, the Paleomammalian brain seems to

be the action-taker, and the ultimate decision-maker (Gevarter, 1976, p. 309). The content and functioning of the old brain thus appears to be a mixed blessing. It must be kept in check to prevent the short-circuiting of free will associated with the neocortex, and prevent harmful data and emotions from causing the person to regress to less effective levels. It also contains the energy, drives, and potential for pleasurable emotion and positive response. When working in conjunction with the third brain, and activated by the logic of the neocortex, it can be a powerful ally. The importance of this balanced functioning has recently been highlighted by Pribram (1979, p. 71) who is working on the theory that traces of the same memory seem to exist in more than one area of the brain.

The Neomammalian brain, with its superior knowledge, skill, perspectives, and objective external orientation, can provide detailed and complex analysis of a situation, and inhibit or activate emotion in the old brain, as long as it retains the control, and the system does not regress (Gevarter, 1977, p. 697). The neocortex receives information predominantly from sensations picked up from the outside, as it thrives on change, and is designed to develop new ideas and solutions. As the person grows from simple to complex forms of thinking, there is a progression toward a more open intelligence and more flexible logic (Pearce, 1977, p.7). This means more data will enter the system, and more can be done with it when

it arrives. The more experiences the person handles, the more extensive his abilities to handle complexity become. In this way, the progression of intelligence is from concrete patterns toward abstract, autonomous thought. Pearce (1977, pp. 11-14) has identified three levels of intellectual development that are intimately connected and reliant upon the physical and social subsystems. Concrete concerns such as physical safety must be relieved before the person moves to the next level. It is this very need for survival that appears to be behind human adaptability. As Pearce (1977) indicates,

Physical survival unfolds through creative interactions with the world; species survival unfolds through genital sexuality; and personal survival unfolds through the development of pure abstract thought (p. 13).

A stimulating example of the product of higher thought processes is the analogy provided by Pribram (1979), who has visualized the brain as operating in the same way as a hologram. A holographic photograph contains the entire picture in each of the parts, and while some brain researchers disagree, it does offer an explanation on how memory seems to be distributed throughout the brain, and paves the way for further exploration. Pearce (1977) was one who took this notion another step when he suggested that the human brain "might be a micro miniature replica of the living planet itself" (p. 13). This is the kind of systems thinking that

makes it possible to visualize the continuity and interconnections in the total system. It also permits speculation on how the three brains identified by MacLean (1973) can work together, despite their own subjectivity, type of intelligence, and sense of time, space, memory, and motor functions. As Pearce (1977) indicated,

Lower brains are not holograms of the whole earth, only of certain aspects of that earth. The simpler the brain, the more specific its programming and the more readily it can efficiently interact with the earth. The newborn baby chick can immediately recognize and peck at seeds of the proper shape and size...The larger and more elaborate the brain, the wider the hologram effect of that species and the greater its intelligence or ability to interact (p. 8).

The necessary interaction is made possible in the early years by the preprogramming and emotional content of the old brain (MacLean, 1973, p. 20; Pearce, 1977, p. 11). It is through the interaction with anything and everything that abilities develop according to the biological plan of maturation. Thus the person gradually develops a knowledge of the world, acquires the ability to deal with the world through creative logic, and finally, an ability to make meaningful relations with abstractions themselves. Intelligence grows by movement from the known to the unknown, and as Pearce (1977) reminds us, we need a secure base for this to occur.

As adults, we should have three safe places to stand at any time: the earth, our relationships, our own power of thought. And, of course, we should have these safe spaces as sources of possibility from which to choose experience and as sources of energy with which to explore those possibilities (p. 26).

Early in life, the infant is propelled into the world of experience by the preprogrammed old brain. Bruner (1973, p. 298) describes this as an intention on the part of the infant, caused by an internal discharge of the nervous system in response to an external stimulus. Since the patterning is developed through sensorimotor activity (Piaget, 1959), any bodily movement, whether by the infant's parents or by the infant himself, will lead to a patterning in the brain concerning that activity. This activity, and brain conditioning, however simple and unconscious, is the base for the development for later, more complex thought. The nurturing at the early stage, and throughout the maturing process of the brain, must be an appropriate balance between the provision of stimulation and matching appropriate amounts to the person's level of cognitive readiness. It is from this secure base that the person can move, unfettered, into abstract thought.

While the Triune Brain Concept is somewhat speculative, it provides a mental model that frees thinking in related areas. For this reason, it will be used as an organizer and as a peg to hang other ideas upon throughout this thesis. Similar organizers such as Piaget's (1959) stages of intellectual development for the early years, and Perry's

(1970) stages of intellectual development in college students will also be used throughout, and will be reviewed next.

Stages of Intellectual Development

Piaget (1959) has identified stages of intellectual development from infancy to the mid teenage period. The sensorimotor stage lasts for about two years. During this time, the infant seems to be moved by reflexive action to encounter the world through sensation. Their knowledge of things is acquired largely through motor activity. In the second, preoperational, stage, between the ages of two and seven, symbolic thought emerges. Imitation of others becomes internalized and language ability follows. At the stage of concrete operations, the child comprehends associations, identities, and rules, but does so with material objects rather than symbolic process. Freedom from egocentricity, and the ability to handle relationships with others is also achieved. The last stage Piaget identified was the stage of formal operations, which he considered developed between the ages of eleven and thirteen. At this period thought is free, logical, and abstract. The person can deal with proportion, negation, and correlation. Piaget's numerous experiments and conceptualizations have helped move ahead our understanding of detailed problems children can encounter because of their incomplete intellectual maturation, and enable us to make allowances for this,

so it will be possible to determine the appropriate stimulation needed.

Most efforts at attempting to identify stages of thinking have been directed at children's intellectual development. Some research has been completed on identifying convergent and divergent thinking, and other types of thinking such as thematic or analytic. The age past adolescence, however, has been largely ignored. Perry's (1970) research is an exception. He discovered a set of stages of intellectual development for the college years. They consisted of nine positions of developing thought which could be further grouped into three major stages. At the lowest extreme is dualism. When the person is in this position they assume situations in the world are either at one extreme or the opposite. This is a time characterized by "good" vs. "bad", "right" vs. "wrong", and "we" vs. "they". The next level he identified as relativism. It is characterized by the holding of many points of view, interpretations, and contingencies that allow for a variety of answers, comparisons, and evaluations. The final stage identified was called commitment. This is an acceptance of the relativistic position, and a realization of identity and responsibility. It permits further growth by the person, within the context of a secure sense of self.

The model Perry (1970) developed, was based on a longitudinal study of students in a four year liberal arts

college, using protocols based on invitations to students to think, and tell him about their thoughts. The students who participated in the study evidenced a change along the continuum towards multiplicity and commitment, during the four years.

Being aware that students at the college level think at different levels of abstraction has important implications. Some students will be looking for the one right answer to a problem and will need help to be able to progress along the continuum. Other students, somewhat further along the route of developing intellect, will consider their job is one of finding the "right" answer on their own. Hopefully these students will be helped to the next stage where realities of various interpretations and explanations are not only accepted, but sought after. Perry's conception of intellectual and ethical stages also helps us to understand how influential the old brain is, even at the college age. The instructor is thus able to view dualistic thinking in students as a level of development rather than a deliberate attempt on the part of the student to undermine the process of education, or the instructor's carefully planned lesson. It is this kind of awareness that transforms education from the externally oriented "grade game" to the search and acquisition of models of reality that are of intrinsic value in their own right. They enable the student and the instructor to interact more effectively with "high synergy" (Maslow, 1971, p. 209). The

instructor's problem thus moves into the realm of designing strategies that will enable the student to be secure enough to move from the concrete dualistic position to the unknown multiplistic and relativistic one.

The benefits that accrue from a knowledge of MacLean's (1973) triune brain concept, and Perry's (1970) intellectual and ethical stages of college students, is not confined to teachers and students. Administrators are enabled to view the interactions of organizational members (students, teachers, staff, and administration) in a relativistic way, and are less likely to need the security of rigid structural controls. They are also more likely to view the education process as one of growth towards relativistic thinking, and away from old brain programming, rather than the maintenance of the status quo, or the contented cow-house syndrome (Brown, 1954, p. 16) of the early industrial psychologist.

Adaptation occurs when the person passes through the stages of intellectual development identified by Piaget (Flavell, 1963), and Perry (1970), and is able to critically examine old brain programming for the purpose of discarding the data that stands in the way of growth, and retaining the schemata that is helpful to the individual. Piaget (Flavell, 1963) has described two processes that enable the person to build cognitive structure. The person first assimilates aspects of the environment into the cognitive structure present. The existing cognitive structure will have an

influence on the way the data is interpreted. In the complementary process of accommodation, the environment operates on the person, as some elements of the situation conflict with the expected, and pose a problem. If the problem creates an optimal discrepancy between what exists as schemata and what is new, accommodation results. In this way, learning takes place. The schemata thus established, results in a temporary equilibrium until the next sequence. It is this process that causes "intrinsic reinforcement" (Phillips, 1969) as the learner is given internal feedback on the success in dealing with the problem. In other words, the learning of a task that is optimal to the person, and their current state of development, results in pleasure. No external reinforcement is needed. When the learner has achieved the formal operations stage (Flavell, 1963), like most college students, this activity culminates in abstract, symbolic thinking. It is this internal pleasure from the success at dealing with an optimal challenge that is at the base of intrinsic motivation.

The actual physical representation of what has been described in the above paragraph has eluded brain researchers (Hebb, 1949; Hyden, 1970; Lashly, 1929). Communication between nerve cells seems to take place both electrically and chemically at the junction of the axon and dendrite, called the synapse. A transmitter chemical (noradrenalin, serotonin, dopamine, and acetylcholine) fires a signal from

the end of the axon to the receptor site in the dendrite. This sets up a chain reaction, much like a fuse, that moves along to the next cell.

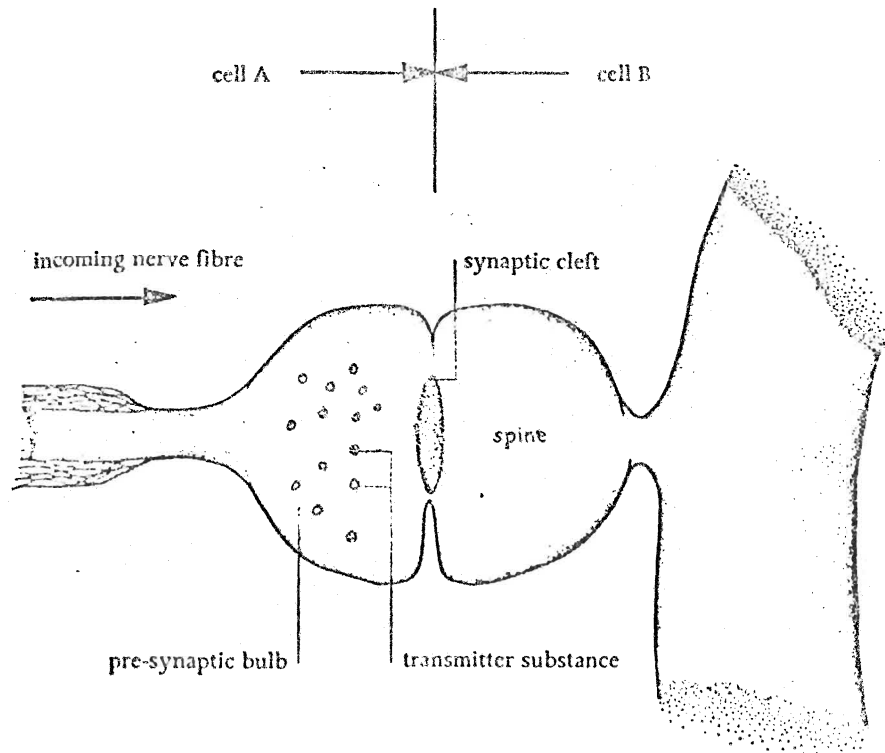


Figure 3-3. The synaptic connection between two cells.
 From Calder, N. The Mind of Man. New York:
 Viking Press, 1970, p. 15.

In the preceding pages the cognitive subsystem has been considered from a variety of perspectives. Through the process of evolution, the human being seems to have evolved three unique "brains". Each of them, with their special characteristics, interact in a constant battle for supremacy.

They also have the potential to work together in a cooperative, integrative way. Paul MacLean (1973) describes one way this meeting of minds can be attained.

No matter how fast man may eventually travel with his neomammalian brain, he will need to acquire self-knowledge that will allow him to accommodate to the horse and buggy pace of his reptilian and limbic brains (p. 22).

Historical evidence points to the way man has brought the external world under control in many ways. This was made possible through the superior qualities inherent in the neocortex. It would seem reasonable to predict that these organizing, analyzing, planning, and synthesizing functions will also be directed to man, the last frontier. The controlling ability of the third brain has already been demonstrated (MacKay, 1966). Perhaps as Perry (1970) implies, this is the function of higher education.

Can education reach through the early socialization influences and tap the creative energy available in the limbic system-neocortex team? The human being has fought this struggle in the past and won. Such historical figures as Einstein, Edison, Penfield, Banting and Best, and many others too numerous to mention, have been able to transcend their environment and their paleomammalian brain programming. The human being seems to be an active, seeking, adaptable creature, who actively builds cognitive structure. Even from the very earliest moment of life, the infant's reticular activating system arouses the thrust outward to the environment,

and the brain patterning starts. This would seem to indicate a cooperative response in relation to the other brains. From this point onward, the environment influences the person and the person influences the environment. Real growth in the structure arises through the optimal challenges the person is faced with that will cause him to examine the schemata that exists and adjust to it in some way. It seems that mental growth continues as long as the mind is actively used (Casady, 1976; Elkind, 1976). This movement toward growth and competence is perceived as intrinsic to the person, and a natural evolving process. As Leff (1978) indicated,

The key ideas in the theories of White (1959), deCharms (1976), Maslow (1971), McGregor (1960), Rogers (1961), G.W. Allport (1955), and many other psychologists concerned with human potentials involve striving for personal competence, self-actualization, self-determination, and similar self-oriented concepts of individual growth (p. 58).

Leff also reminded us that the striving for competence is dependent upon the lower needs of safety and survival (Leff, 1978, p. 62). This observation is consistent with the findings outlined earlier in this chapter, and with the symbiotic functioning of man's triune brain. The reflexive requirement for survival, located in the first brain, interacts in concert with the emotions, needs and values of the second brain. The third brain, ideally, coordinates and controls the total functioning of the human system. This overall balance of the triune brain, and the related physical, social-

environmental and motivational-emotional subsystems is much more difficult to accomplish than it is to describe. Against this background, the motivational-emotional subsystem will be considered. It is both the potential energy source for the human system and the horse in our head (Calder, 1970, p. 274) that must be harnessed.

Figure 3-4 highlights the three areas of importance in the motivational-emotional subsystem. They have been included in the educational transactions model to show their importance as central energizers, and to demonstrate their interrelated function. The characteristics shown below the dotted lines in the boxes of perception and competence, represent their negative expression. The interaction of intrinsic motivation, lower drives, and emotion is different, and will be given special consideration in the pages that follow. The total model and the transactions involved among the component parts will be described in later chapters.

The Motivational-Emotional Subsystem

Motivation (appetites) and emotion (affects) are considered together, as they function in an intimately, integrated fashion. Pribram (1971, pp. 212-213) describes motivation and emotion as expressing relationships between perception and action. As an example, he cites "loving" as a motivated state denoting action (effective); and "being in love" as the corresponding emotion (affect).

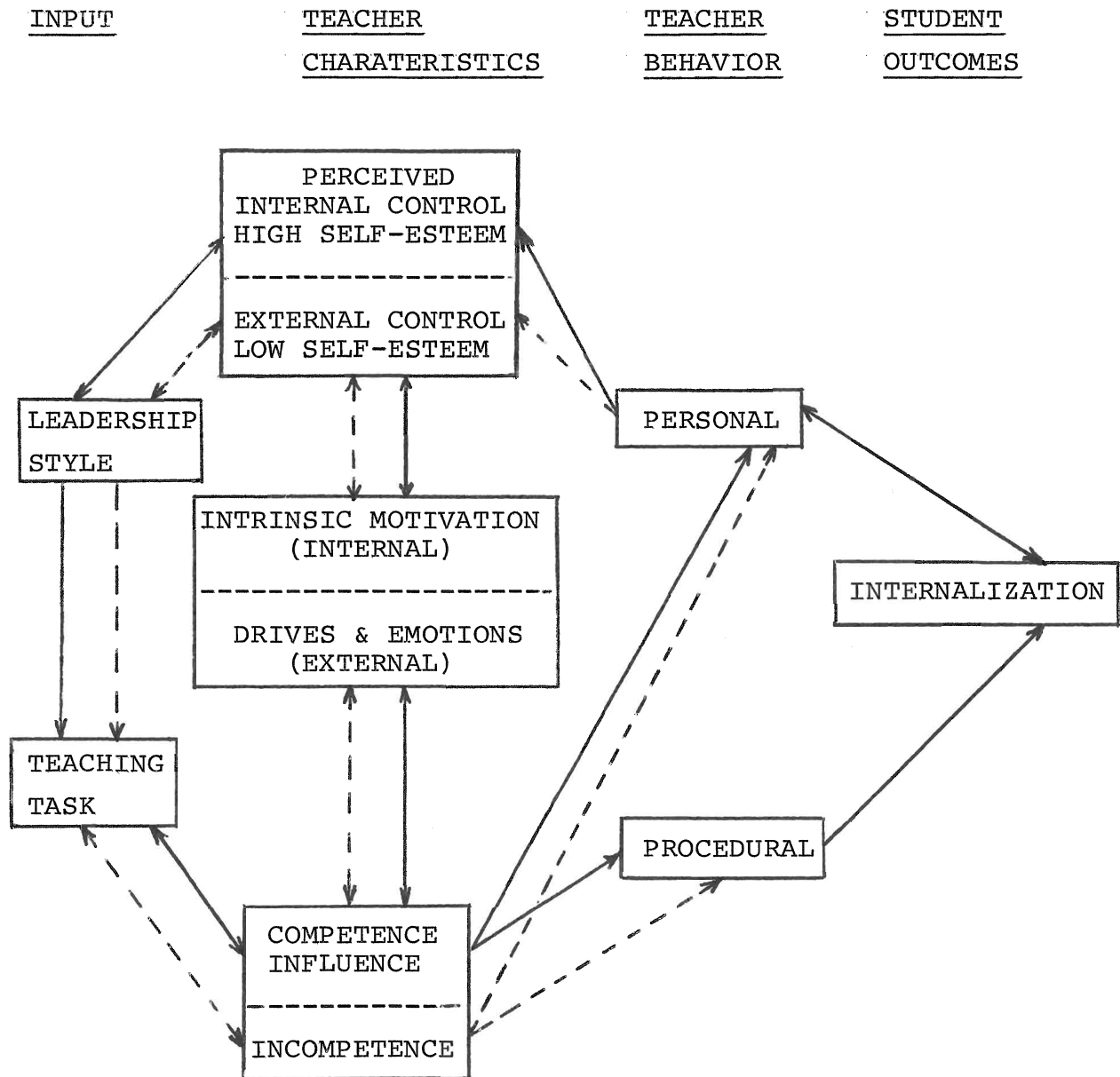


Figure 3-4. The interaction of perception, motivation, and competence in educational transactions.

Interest, the experience of emotion and motivation, occurs when the person takes on an optimal challenge, in addition to his competence. If the outcome is failure, the person becomes emotional and defensive or self-controlling (Pribram,

1971, p. 212). In the reverse situation, where the person perceives no challenge and becomes a closed system, no emotion or motivation is experienced. Under these conditions, they are often described as apathetic or uninvolved. Both the passive or overactive condition are undesirable, according to Pribram (1971). Too much emotion leads to difficulty in taking action, but not enough leads to motivated behavior that is too narrow. Emotions seem to signify an internal control process in operation, and motives indicate action. They seem to operate as a team, located in the limbic system and the hypothalamus (Smythies, 1970, p. 113), that are, in turn, located in the old (paleomammalian) brain. Since the old brain is the ultimate decision-maker, and contains the person's conditioning from past experience (Gevarter, 1976, p. 309) as well as the motives and emotions, it makes a considerable impact on the person's behavior. Most of the emotionally toned values, ideas, rules, dogma, and stimulus-response actions have been absorbed in the second brain without conscious awareness (Gevarter, 1976). Much of this "programming" has been uncritically introduced in the person's pre-adolescence, before the third brain has had a chance to evaluate it. As a result, it is often a "mixed bag" of emotionally loaded data that filters and distorts new brain conclusions (Gevarter, 1977; MacLean, 1973).

The researchers considered above have viewed the interaction of motivation and emotion largely in terms of

the negative and restrictive results. In other words, the person must be wary of getting into an emotional blockage or narrowing his motivation. There is another side to the motivation-emotion question that involves the higher brain process, and the internal stimulation that comes from causing events to happen, and becoming more competent. Campbell (1973, p. 27) views the fundamental drive as activation of the pleasure centres in the old brain. Deci (1975, p. 99) visualizes the new brain as a processor of the external situation and the internal awareness of potential satisfaction. The reward is the feeling of self-determination and competence that results. The cognitive aspect of motivation is stressed by Arnold (1960), and by Flavell (1963, p. 81), who sees the emotional-motivational system as an energizer, and the cognitive system as the structure. Simon (1967, p. 51) also stresses the dependence that emotion has on cognitive appraisal, and the positive function that emotion provides in meeting "real time" needs related to uncertain emergency situations. This "interrupt mechanism" allows the person to divert activity from goal-seeking behavior to respond quickly. The controlling aspect of the neocortex is stressed by Gevarter (1977, p. 698), who indicates that emotion can be initiated in three ways. One route is from the senses direct to the limbic system and hypothalamus. A second possibility is through the temporal and prefrontal lobe interpreting data from the sensory areas. A third

possibility also involves the prefrontal cortex as an originator of thought that results in emotion. This balance, in favour of the cortex, allows for the possibility of the third brain bringing about pleasure from learning, becoming more competent and self-determining.

Nuttin (1973) hypothesized that while both external stimulation and producing the stimulation are rewarding, the person will prefer being the cause of the stimulation. He gave groups of five-year old children an opportunity to play with an interesting automat that lighted up automatically or one they could control themselves. The children preferred the automat they could control. From this he concluded,

The fact that producing stimulation is preferred to stimulation as such points to the basic behavioral tendency to produce events, or to do something in the sense of changing something or making something happen. This is what could be called causality pleasure...Generally one of the main sources of pleasure in man is to do things (p. 251).

These examples described above are only a very few of the many indications that the human being grows toward a searching, controlling state. As the most helpless animal in the world at birth, the individual's drive to make things happen moves him forever onward. The natural condition of the human being appears to be the motivated state. As White (1959) indicates,

Of all living creatures, it is man who takes the longest strides toward autonomy. This is not because of any unusual tendency toward bodily expansion at the expense of the environment. It is rather that man, with his mobile hands and abundantly developed brain, attains an extremely high level of competence in his transactions with his surroundings (p. 318).

It is within this systems perspective that the details of intrinsic motivation will be considered next. Of the five subsystems described by Katz and Kahn (1978, p. 52), the adaptive subsystem is the one energized by intrinsic motivation, and its associated emotional components. The supportive subsystem is maintained by the social-environmental aspects, the maintenance subsystem might be viewed as partly the physical system, and the production and managerial subsystems receive their direction from the cognitive system, the master, overall control.

The Intrinsic Motivation Construct

Intrinsic motivation is a cognitive concept. It is awakened early in the child's life through the influence of the social support system and the environmental opportunities present. Like other aspects of the person, growth seems to develop from simple to complex responses. Based on the data to be covered in detail later, it would appear that the connection between the reticular activating system in the reptilian brain, and the posterior intrinsic section of the cerebral cortex in the neomammalian brain is an avenue

through which intrinsic schemata is established (see figure 3-5). A simple movement is initiated by the child or by someone for the child. In this small beginning the RAS communicates with the cortex and a primitive "can do" model is established. Because this is an unconscious process that is amenable to conditioning, the social system described earlier is a crucial determinant in the development of the kind of person deCharms (1968) describes as an "origin" rather than a "pawn". Whether the paleomammalian emotions and lower-order drives seem to predominate, or the higher centres of intrinsic motivation in the neocortex develop will to a large extent depend upon the person's experiences (Seligman, 1973, 1974). The question addressed later will be how a person can be helped to develop intrinsic motivation and internal control (Rotter, 1971, p. 59), where people perceive themselves as responsible for their success or failure, and as effective and autonomous.

When the person is intrinsically motivated, the neomammalian cortex triggers pleasant emotion in the second brain when challenge is sought and conquered (Deci, 1975, p. 67; Nuttin, 1973; White, 1959).

Intrinsically motivated behaviors are behaviors aimed at bringing about certain internal rewarding consequences that are independent of non-nervous system tissue needs (Deci, 1975, p. 59).

The points that follow are taken from Deci's (1975) synthesis

of the research and conceptions that exist on intrinsic motivation:

1. No apparent external rewards are involved in intrinsically motivated behavior. The activity itself becomes rewarding.
2. Intrinsically motivated behaviors involve the need to become competent and self-determining. Among the researchers who have shed light on this are: Angyal (1941) self-determination is the essence of intrinsic motivation; deCharms (1968) the striving for personal causation so that the person perceives himself as the locus of causality; Deci (1975) cognitive evaluation theory - the person perceives a change in locus of causality, and in feelings of competence and self-determination. Causality is internal; White (1959) competence - an ability to deal effectively with the environment through exploration, manipulation, attention, perception, thought, and communication.
3. Intrinsically motivated behavior involves seeking optimally challenging situations (Hunt, 1965). Optimal arousal is achieved through an optimal incongruity between input and a standard (Hebb 1955). Intrinsically motivated behaviors are most likely when primary tissue needs are well satisfied (Fiske and Maddi, 1961).
4. Intrinsically motivated behavior also involves conquering the challenge or reducing the incongruity. If the challenge is too difficult or too far above the optimal level, it will be ignored until it is within the range.

This conquering aspect is similar to cognitive dissonance reduction (Festinger, 1957), and to uncertainty reduction (Kagan, 1972b). This dual process causes a cycle of cognitive growth (Elkind, 1971).

5. Intrinsic motives are based on the physiology of the central nervous system. Berlyne (1971) indicates that the brain must compare and contrast various stimuli from the environment or memory and collate them into a meaningful system. This provides energy to reduce uncertainty, which he calls curiosity.
6. The desired end-state of intrinsically motivated behavior is the affective one of feeling competent and self-determining. In addition, the person can tolerate substantial fatigue and put off primary needs such as hunger (Koch, 1956, 1961).
7. Intrinsic motivation energizes and directs environmental interaction (Deci, 1975). It is continuous unless interrupted by an awareness of potential satisfaction. This might be another motivational process or emotions that Simon (1967) calls "real time needs". They work like interrupt mechanisms in an information-processing system, and help the person to adapt to an unpredictable event.
8. Hunt (1963) postulated that intrinsic motivation is inherent in information processing and action, and saw the person as an information processing system.
9. Perry (1970), in his study of college students, found

that most of the students perceived the environment of the college as offering an "opportunity" (p. 50), rather than a pressure to change. This seems to indicate that the students perceived themselves as competent and self-determined. As Perry indicated,

Most experienced the environment as offering not "press" but "opportunity",...Second, the students' remarks revealed that the urge was inseparable from a standard which they experienced as a sense of optimal rate of growth...These two considerations suggested that our students experienced the energy of their development as primarily internal (pp. 50-51).

Research Evidence on Intrinsic Motivation

The empirical research evidence on the presence of intrinsic motivation is overwhelming. It would take several volumes to do justice to the available data. White (1959) and Deci (1975, chap. 2) have attempted to classify the research according to the approaches taken. Some of these explanations have already been referred to earlier in this chapter (Angyal, 1941; Berlyne, 1971; deCharms, 1968; Deci, 1975; Elkind, 1971; Fiske & Maddi, 1961; Festinger, 1957; Hebb, 1955; Hunt, 1965; Kagan, 1972b; Koch, 1956; White, 1959). The first of these is the period when an attempt was made to identify exploratory behavior as a drive. These early "drive reduction" theories did not offer a satisfactory explanation for motivated behavior increasing stimulation. The reduction of uncertainty approaches also

failed to account for the person seeking stimulation. Evidence now available seems to support Hunt's (1965) "optimal incongruity" approach. He thought people seem to be motivated to maintain an optimal level of disharmony, rather than eliminate it. As Deci (1975) indicated,

people engage in many behaviors which seem to be motivated by a need to reduce uncertainty. However, all uncertainty is not aversive; in fact, organisms sometimes seek uncertainty (p. 54).

The drive approach and reduction of uncertainty approach are summarized in table 3-1.

Table 3-1

"Drive" and "Uncertainty Reduction" Approaches to Motivation

<u>Approaches</u>	<u>Researchers</u>	<u>Findings & Conclusions</u>
Drive approaches		
Exploratory	Montgomery (1954)	Rats will spontaneously explore novel places.
Visual Exploration	Butler (1957)	All primates have a strong drive to see their environment.
Avoidance of Boredom	Zimbardo & Miller (1958)	Rats prefer novelty and have a drive to relieve boredom through change in the stimulus
Manipulation Drive	Harlow (1953)	Monkeys have a drive to manipulate puzzles of hasps and hooks. External stimulation would change the drive.
	Premack (1963)	Being able to run an activity wheel was reinforcing, and would strengthen other responses.

Table 3-1 continued

Table 3-1, Continued

<u>Approaches</u>	<u>Researchers</u>	<u>Findings & Conclusions</u>
Uncertainty Reduction Approaches		
Resolving Uncertainty	Kagan (1972 b)	A stimulus will lose its interest producing quality with repeated exposure as uncertainty will be reduced.
Dissonance Reduction	Festinger (1957)	Individuals tend to reduce the lack of harmony between two opposite ideas or behavior and idea.
Uncertainty Reduction	Lanzetta (1971)	Action is chosen that will reduce uncertainty.

After Deci, 1975, p. 58; Hunt, 1971; White, 1959.

According to Deci (1975, p. 59) findings that support the optimal arousal, optimal incongruity, and competence theories seem to hold the most promise. They are also more congruent with the systems approach taken in this thesis, as they include all system components. The optimal arousal approach postulates that individuals have a need for excitement and novelty. Optimal incongruity implies the person tries to balance stimulation between their adaptation level of too much or too little. The third area, competence approaches, is concerned with the ability individuals demonstrate in dealing with their environment and how they manage by exploration, manipulation, attention, thought, perception, and communication. These approaches are summarized in table 3-2.

Table 3-2

More Complete Approaches to the Conceptualization of Intrinsic
Motivation

<u>Approaches</u>	<u>Researcher</u>	<u>Findings & Conclusions</u>
Optimal arousal	Hebb (1955)	Humans act to raise their level of stimulation. The central nervous system is the origin of behavior and motivation that raises with low levels of arousal and becomes disorganized with high levels of arousal. Movement progresses toward an optimum level of stimulation. Optimal level of arousal varies with the sleep-wakefulness cycle.
	Leuba (1955)	
	Fiske & Maddi (1961)	
Optimal incongruity		
optimal incongruity	Hunt (1965)	If the person encounters something that is different than a standard adaptation level, the person will act to reduce the gap. An optimal amount of incompatibility is necessary. The human being is an information processing system, in which intrinsic motivation is implicit. Difference between a person's expectation and properties in the stimulus are important. Attention that brings the person into contact with the environment; complexity, the difference between the person's expectations and the actual value; and a pacer stimulus guides the person. Optimum levels of psychological complexity are preferred. People process information from the environment and their memory to make choices. Because the person is
optimal incongruity	Dember & Earl (1957)	
optimal complexity	Walker (1973)	
optimal arousal potential	Berlyne (1971)	

Table 3-2 continued

Table 3-2, continued

<u>Approaches</u>	<u>Researchers</u>	<u>Findings & Conclusions</u>
optimal complexity	Berlyne (1971) continued	structured to cope with challenges, he will seek them. Thus, data is "collated" into a meaningful system for operating and storing. Based on the research of Olds and Olds (1965), who located three reward systems in the brain.
discrepancy from adaptation level	McClelland et. al., (1953)	Achievement motivation is learned when cues related to a standard of excellence are associated with pleasant emotion.
Competence and self-determination		
effectance	White (1959)	Energy for intrinsically motivated behavior comes from the central nervous system. It is interrupted periodically by tissue needs (e.g. hunger). People are motivated intrinsically to behave in ways to feel competent (dealing effectively with one's environment). Effective behavior is most likely to occur under conditions of relative safety.
self-determination	Angyal (1941)	Individuals are capable of developing self-determination because many of the processes become consciously known. The person's idea of self governs behavior. Individuals develop themselves through incorporating the environment and making contributions to it.

Table 3-2 continued

Table 3-2, continued

<u>Approaches</u>	<u>Researchers</u>	<u>Findings and Conclusions</u>
personal Causa- tion	deCharms (1968)	Man strives to be a causal agent. Intrinsic motivation results from the person's perception of his causality. The desire to control one's own fate is a main stimulus to motivation.
competence and self-determina- tion	Deci et al. (1973)	People behave so as to feel competent and self-determined. They seek reasonable challenge that allows them to make optimum use of their abilities. They are also motivated to reduce uncertainty, dissonance, and incongruity and thus conquer challenges.

After Deci, 1975; Eisenberger, 1972; Hunt, 1971; Madsen, 1974; Schroder, et al., 1967; White, 1959.

The approaches described in the above tables represent intrinsic motivation as evidenced in the person. In a systems context, it would also be necessary to consider the external aspects of the environment and to describe how they relate. This aspect of motivation will be left to the next chapter, when various environments will be considered that encourage or discourage intrinsic motivation. In the next part of this chapter, the semantic problems associated with the use of the terms intrinsic and extrinsic, and the variety of uses made for these conceptions will be reviewed and clarified within the perspective of the approach taken in this thesis. Broedling

(1977) attempted to highlight the current confusion that exists in the use of intrinsic motivation as a trait, as inherent in the task, or as a combined interaction of the person and the task. Support for the competence and self-determination approaches seems to be evident in the study completed by Dyer and Parker (1975, p. 457) who surveyed ninety-three members of the American Psychological Association. Ninety percent of the respondents agreed that feelings of self-fulfillment and worthwhile accomplishments were evidences of intrinsic outcomes.

A symposium held at a convention of the American Association for the Advancement of Science (Weiner, 1974) reviewed some additional empirical support for the union of motivation and cognition. Mischel (1974) described his work with children and his finding that their active cognition allowed them to delay gratification. The use they made of the time they were waiting in many cases, became more appealing than the rewards. This is part of a larger study he and his associates are completing on the "role of cognition and attentional processes in self-control" (Mischel, 1974, p. 33). The research of Lazarus (1974) and Weiner (1974b) also focused on internal acts rather than external stimuli, and was based on the assumption that man is active rather than passive. In concluding the symposium, Weiner (1974) summarizes the current state of cognitive motivational theory. He emphasized the need for "some royal roads to the conscious, roads that function as mental x-rays" (p. 99). These royal roads he saw

as reference experiments that demonstrate the validity of conceptions such as those indicated above. These reference experiments produce "systematic and reliable data" (p. 99). The theoretical positions summarized in earlier pages also have the support of empirical investigation, although this data was not included. Again, Weiner (1974) cogently stated the direction this evidence is taking when he said,

It is evident that a cognitive functionalism is being developed that is every bit as precise and as scientific as behavioral functionalism, which is our recent heritage. It is also clear that humanistic conceptions of man can be accompanied by the scientific precepts so carefully nourished by the behaviorists and the neobehaviorists (p. 100).

Empirical evidence, by itself, is not enough. All scientific investigations start with hypotheses and assumptions, and these must be clearly stated if observations are to hold any credibility. Dewey (1939) reminded us that all deliberate activity is influenced by estimates of worth and value, and these can be submitted to the process of inquiry, the observation and collection of facts. For Maslow (1959) the essential condition for discovering these basic values is choice. Clearly establishing one's values and assumptions in advance of data collection and prescriptions of behavioral action is necessary for freedom of choice, and the conduct of inquiry. Stating one's assumptions explicitly makes it possible for others to know where the biases are, and in the spirit of developing internal control, allows the

reader to have enough information on which he might judge for himself whether the conceptual starting place makes sense for him.

Deci (1975c) has demonstrated just such an approach, in a response to criticism of Scott (1975), who critiqued the concept of intrinsic motivation from a mechanistic orientation, without indicating his implicit assumptions. The conception of intrinsic motivation used in the pages that follow, will largely be based on Deci's definition, as he has clarified his philosophical assumptions on which his conception of intrinsic motivation is based. He said,

My metatheoretical starting point is the assumption that internal states do cause behavior. Motives, emotions, and cognitions play a central part in energizing and directing behavior...These assumptions are not provable in a scientific sense; they are the philosophy on which we build psychology (Deci, 1975c, p. 130).

The Physiological Structure of Intrinsic Motivation

It can be postulated that intrinsic motivation is an important energizer of behavior. Viewed in the context of the Triune Brain (MacLean, 1973), it has the potential to unite all three brains in a symbiotic relationship that provides for control in the higher centre of the cortex, rather than the old brain response mechanisms. Motives and emotion are generally considered to be located in the hypothalamus and the limbic system. Pribram (1971), however,

has conceived the brain function in a much wider context. Based on an abundance of neurophysiological evidence (Pribram, 1971, p. 209) it is clear that the person's input channels and sensory receptors can be controlled by the central nervous system. He described the process in the following way, in the context of the brain acting as a servomechanism:

The specificities of feelings suggest that there is more to motivation and emotion than quantitative disequilibrium and uncertainty, more than the disruption of the psychological process, certainly more than just a hypothalamic mechanism ...One road open to the organism in coping is to do something to, to act on his environment...But action is not the only way in which an organism can achieve variety in control. The possibility exists that he may cope by exerting self control, i.e., he may make internal adjustments with his neurological system, adjustments that will lead to reequilibration without recourse to action. My thesis will be that it is these internal adjustments that are felt as emotions (p. 208).

The systems thinking described above was made possible by two changes in views of how the central nervous system works. The first is a change in viewing the functional unit as a reflex arc to a feedback loop. Evidence has accumulated, since World War II, that there is direct feedback control of receptor input to the brain and motor output leaving the brain (Hunt, 1963b, 1965, 1971, p. 8). The second breakthrough came when the overall brain function was conceived as an active information processor, rather than a static switchboard (Hunt, 1963b, 1965, 1971).

The way the computer worked in processing information

suggested the term "motivation inherent in information processing" (Hunt, 1963b, pp. 35-94). The analogy was made possible by the findings of Newell, Shaw, and Simon (1958), who found three processes that the brain uses to solve problems. The first is an ordered memory control system that contains symbolic information. The second is a number of primitive information processes that operate on the information in the memory. These processes become organized into a prescribed set of whole programs that produce external behavior and constitute the third process.

Based on these conceptions, Pribram (1960) postulated that the components described by Newell et al. (1958) are likely located in the intrinsic portions of the cerebrum. Earlier, Rose and Woolsey (1949) had identified an extrinsic portion and two intrinsic parts of the cerebrum, while researching the auditory region in cats. They found that the extrinsic portion was connected directly with the receptors and effectors, and the thalamus and the motor cortex mediated the system. The two intrinsic portions were found in the frontal and posterior sections of the brain, respectively. The ratio of intrinsic to extrinsic portions in the brain is an important indicator of level of complexity and conscious control. Vertebrates such as reptiles and amphibia have a lower ratio of intrinsic/extrinsic portions, and as a result have an almost semi-autonomous intervening central process between input and output. Man has the largest intrinsic/extrinsic ratio in the animal world, and the two intrinsic

sections seem to account for a separation in the information processing function and the executive organization and planning action (Hunt, 1971, p. 10).

Hunt (1963b, p. 51) attempted to illustrate how the three parts of the brain are located in relation to one another. His schematic diagram is reproduced in figure 3-5, and represents a side view of the brain, similar to the view presented in figure 3-2 of MacLean's (1973) "Triune Brain". The inputs from the receptors to the thalamus and then to the extrinsic sectors of the cerebral cortex, where they arouse various visual, auditory, and other sensory systems. As can be seen in the diagram, the medial and pulvinar sections of the thalamus connect to the two intrinsic portions of the cortex but they do not have direct input from the receptors

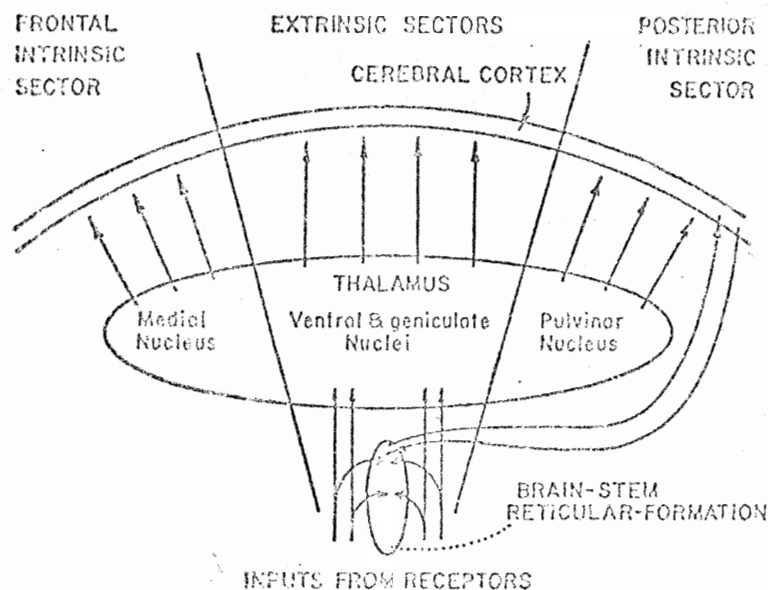


Figure 3-5. Schematic diagram to illustrate the division of the cerebrum into intrinsic and extrinsic sectors on the basis of their afferent connections (Hunt, 1963b, p. 51).

like the extrinsic sector does. In addition, the posterior intrinsic portion has connections from the RAS (reticular activating system) in the brainstem (MacLean's triune brain concept, 1973).

The frontal intrinsic system contains the dorso-medial nucleus of the thalamus, the frontal association areas of the cerebral cortex, the limbic system, and its connections to the homeostatic need in the internal core and the hypothalamus. It is this intrinsic section that contains the action plans that affect the executive functions by means of the TOTE mechanism conceived by Pribram (1960). It will be described later. The prefrontal cortex is located in the frontal system, and it is the section that makes rational decisions. The effectiveness with which it operates is dependent on the stored values, as well as the skills and knowledge it can draw upon. It has the potential to activate the limbic and hypothalamic pleasure centres or distort and repress incoming information (Gevarter, 1977). This intrinsic system is of particular importance because of the unique functions performed by the cortex. As Gevarter (1977) indicates,

The new brain has a random access memory, the effects of which can be changed with new experiences and cognitive insights. The new brain is capable of making comparisons, differentiating, and forming patterns, so that it is not simply a biased stimulus-response mechanism...Because humans need to understand their environment, so that they can make predictions for successfully interacting with it, they have a build-in tendency for completing gestalts (or model building) (p. 698).

The posterior intrinsic system is composed of the pulvinar nucleus of the thalamus and the association areas of the cerebral cortex posterior to the central sulcus. The parietal, temporal, and occipital lobes are located in this system, and the RAS (reticular activating system) is connected with them. Coded images of what has been received in this system seem to be stored there (Hunt, 1963b, p. 53). The posterior intrinsic system is of particular importance because of the presence of the interpretive cortex that covers the temporal lobe, and of the connection with the RAS. The reticular activating system runs from the top of the spinal cord through the brainstem to the posterior cortex, and functions to alert the cortex to the most important incoming messages. The interpretive cortex functions by matching the data stored with that coming in. Energy for action seems to arise when there is a difference between the two. In comparison, the frontal intrinsic system seems to energize from the frustration and conflict among plans, based on the input compared to the output (Hunt, 1963b, p. 55). The parts of the brain referred to above are diagrammed in figure 3-6. The operation of intrinsic motivation will be considered next.

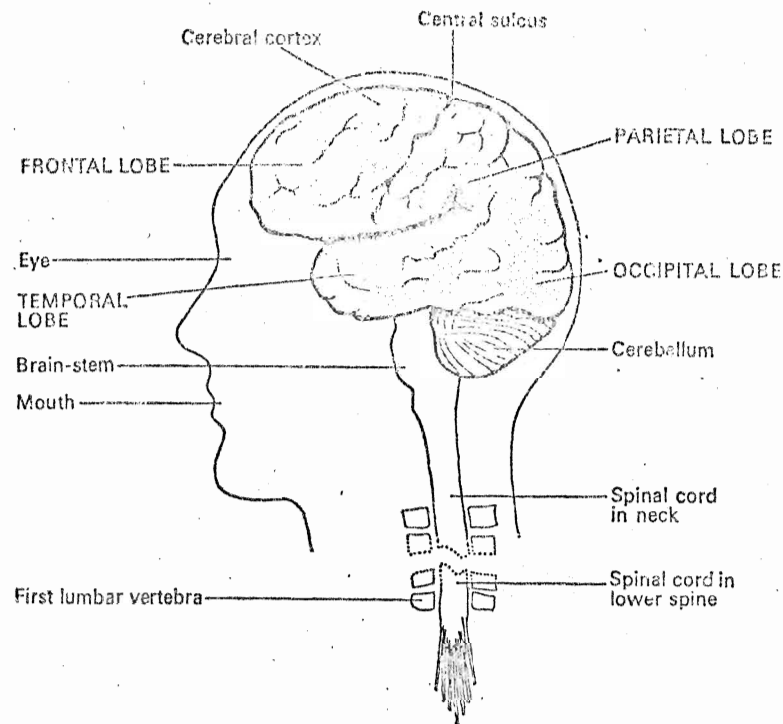


Figure 3-6. Major parts in the human brain (taken from Russell, 1975, p. 2).

Intrinsic Motivation in Operation

The assertions made in the preceding pages point to the naturally evolving condition of the human being as one in which he is characterized by increasing complexity and control through the higher centres of the neomammalian brain, where the cerebral cortex is located. In particular, the frontal and posterior intrinsic systems, as detailed above, contain important decision-making functions. The person who has contributed much to our understanding of how these two intrinsic sections function is Karl Pribram (1971). He has integrated his experiments and this theoretical formulations with psychology, the neurosciences, and information theory and cybernetics. As such, he is the logical one to place

the operation of the system into perspective, and to describe how it operates. His basic hypothesis was stated in a stencilled version of his 1971 book, and while it was not kept in the printed version, Madsen (1974) printed the passage contained below:

The systems approach has shown the brain to be an organ superbly fitted to organize and reorganize its own activity, i.e., to make codes. It codes experience, transforms this coded representation into another form and in turn, re-encodes whatever becomes available in terms of new experiences. The function of the brain is to process and reprocess information just as it is the function of the liver to process and reprocess metabolites. The brain is thus a prime instrument for the production of languages, even a language to describe itself (p. 154).

According to Pribram (1971), "behavior is guided by the competence of the brain to organize stimuli" (p. 264). Language and thought are intimately connected, and are represented by what Pribram (1971) calls "sign" and "symbol" (p. 365). Signs are coded representations of the sensory world, while symbols refer to the world within the person. Both are produced through action but the symbols contain the memory of the effect the action has on the person. Symbols organize the temporal system. Thinking, as Pribram (1971, p. 369) conceives it, involves sign and symbol manipulation, and seems to also involve holographic mechanisms that perform associative and cross-correlation functions. As Pribram indicates,

Thinking derives from prolongations of states of active uncertainty which can be resolved only when the images involved become reconciled...According to this view, thought is a search through the distributed holographic memory until uncertainty is resolved, i.e., until the relevant information is obtained (370).

Pribram conceives three images (variables). The first is "Images of Events", which are similar to perception. They result from the brain coding information. The second, "Monitor Images", are neurological representations of emotion and motivation of the person. The last variable, the "Images of Achievement", are the person's plans or intentions, and provide the directing function. It is these three categories of variables that cause behavior. They work in concert, with the directing function being carried out by the Images of Achievement; the Image of Events helping to adapt plans and behavior by processing necessary information; and the Monitor Image providing the values, emotions and motives for goal-setting purposes.

Within the "Images of Events" (Pribram, 1971), is a controlling element called the TOTE mechanism. It is similar to the operation of a house thermostat, and is a type of servomechanism with a feedback loop. TOTE stands for Test-Operate-Test-Exit, and works by taking the input from a receptor cell, which is tested (compared) against an established standard. If there is a difference between the input and the standard, the person operates (behaves) until

the incongruence disappears between the stimulus and the standard. This is again tested, and when the standard is reached, the test is met. The circuit is then broken and the process ends, or exits. Like the outdated explanation of brain functioning, called the reflex arc, Pribram (1971, p. 94) is the first to admit his conception is a rather crude way of representing the complexity of brain functioning, but for our current understanding it is the most accurate picture we have available. It is also a conception that has already been extended to include a "feedforward" concept since it was first introduced (Miller, Galanter and Pribram, 1960).

Empirical evidence that the brain coding plays a central role, led Pribram (1971, pp. 88-95) to postulate a "feedforward" bias mechanism to add to the TOTE concept. Held (1965), for example, found that when subjects wore distorted glasses they were still able to orient themselves to the new environment. Pribram (1971) suggested a simple experiment to verify the presence of the feedforward mechanism. He suggested that if one were to step on an escalator that is not moving, the sensation of upward movement will be experienced for a few seconds. This movement, according to Pribram (1971) "appears as a specific bias attached by experience to escalators" (p. 91). The relationship of these memory codes, and the way they operate as feedforward is diagrammed in figure 3-7. Pribram describes the operation in the following way,

To be effective, input must be compared to and tested against spontaneous or corollary central neural activity; the results of this comparison initiate some operation which then influences either other parts of the nervous system or the external world. The consequences of this operation are then fed back to the comparator and the loop continues until the test has been satisfied - until some previous setting, indicative of a state-to-be-achieved, has been attained (exit) (Pribram, 1971, p. 93).

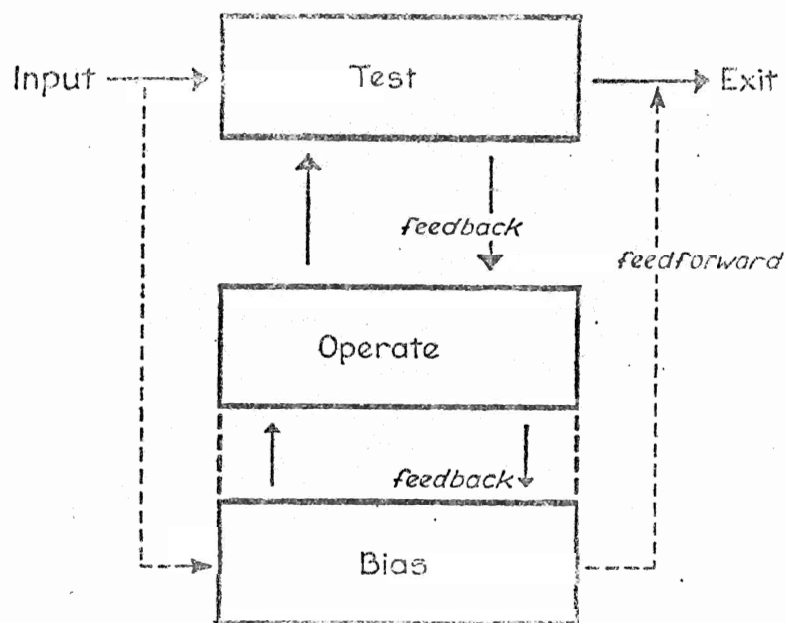


Figure 3-7. The TOTE servomechanism with the feedforward operation shown (taken from Pribram, 1971, p. 94).

Deci (1975, chap. 4) provided a tentative overall model that brought together the ideas of several researchers in addition to Pribram (1971), outlined above. Deci's conceptualization has not been operationalized yet, but it

offers a useful cognitive framework for the inclusion of "intrinsically, extrinsically and affectively motivated behaviors into one system" (Deci, 1975, p. 124). It assumes that people choose behavior that leads to goals they find appealing. It also assumes that people seek external goals that relate to drives, intrinsic rewards that result in feelings of competence and self-determination, and positive changes in emotion. Each person has a cognitive representation, based on the environment, memory, and internal states, and these models establish expectations of future reward possibilities.

Inputs from the external environment, the person's memory, and from internal factors such as chemical changes, initiate the information processing system. These three stimuli provide for an awareness of potential satisfaction that provides the energy for goal-seeking behavior. As Deci (1975) indicated,

This awareness of potential satisfaction comes from the information, which in other motivational systems, has been labeled drives, intrinsic motivation, and affective states (p. 99).

A person's intrinsically motivated need for feelings of self-determination and competence are operative unless interrupted by primary drives, such as hunger and thirst, or emotions that energize, direct and sustain behavior (Deci, 1975, p. 102). The important difference between intrinsic needs and primary drives is what happens when the goal is attained.

With drives such as hunger and rest, satisfaction of the need results in temporary reduction of the drive. When goals are attained from intrinsically motivated behavior, the need will remain, without being reduced. Positive emotion is generally a rewarding experience and goals are sought that will bring this reward. On the other hand, people will engage in behavior that may bring negative or unpleasant feelings, because the end result will leave them feeling competent and self-determined. For example, people may study for long hours to gain knowledge that will result in feelings of competence at having mastered the material.

Following the awareness of potential satisfaction, the person selects a goal that is perceived as capable of satisfying the motives and the emotions energized. Deci (1975, p. 97) drew on the research in expectancy theory to support goal seeking behavior. The early work of Tolman (1959) and Lewin (1951) established the possibility of both positive and negative goals, and strength of the goals (valence) in the person's perceptual field. This, in turn, set the stage for Atkinson's (1964) achievement motivation, which arises from the basic need to be competent and self-determining (Deci, 1975, p. 107). According to Atkinson's model, individuals have a need to match some standard of excellence, and this "motive for success" is inherent in the person. As Deci (1975) described it,

It will be manifest when the situation allows the person to feel responsible for the outcome (i.e., when it is personally caused rather than environmentally caused), when there is feedback of results, and when there is some risk of failing (p. 107).

In addition, the probability of success and the value of the goal achievement will also have an effect on the person's action. Both of these are heavily influenced by the person's past experience, both in achieving success and the perceived difficulty of the goal. If the goal is difficult, it will be valued more. People have the tendency to avoid failure as well as approach success. Like the more positive tendency to achieve, the strength depends on the motive to avoid failure (Atkinson, 1964). Deci's model of motivation extends achievement motivation to include other intrinsically motivated behaviors, and to add the notion of extrinsic motivation. Vroom (1964) has concerned himself with the external value of various outcomes to the person. Contrary to intrinsic motivation, as described earlier, the tendency to action would be highest when the goal attainment was easiest. On the other hand, Locke (1968) sees motivation tied directly to goal difficulty, and the person's acceptance of the goal. Putting these two states together, Deci (1975) indicated,

In sum, one's extrinsic motivation seems to increase as the desired reward becomes easier to achieve. However, his intrinsic motivation increases as the goal difficulty increases, up to some optimal level. The problem in real life situations is that both kinds of motivations are operative. So, the findings become very complex (p. 117).

Once a goal is selected, the person will attempt to attain the goal, resulting in goal-directed behaviors. According to Irwin (1971) an individual will select actions that result in the outcomes and rewards desired. This goal-directed behavior will continue until the goal is achieved, or the primary drives or emotions interrupt. Awareness and comparison is continually proceeding, with the help of the TOTE mechanism (Pribram, 1971) described earlier. The person is thus able to compare the existing conditions with the goal. Termination of the activity, according to Simon (1967) will occur when the goal has been achieved to the person's satisfaction, when the person becomes impatient and selects the best alternative available, or the person becomes discouraged, and this emotional state ends the goal seeking.

The end result of the foregoing activities is the attainment of rewards and satisfaction in three areas. According to Deci (1975, p. 121) the rewards could be the kind that come from the satisfaction of a drive like hunger (extrinsic), they could meet the intrinsic need for feelings of competence and self-determination or they could provide an emotional change that is rewarding. The satisfaction or lack of it, is detected by another TOTE mechanism, that is similar to the one described earlier. The first one compared the behavior and the goal. This TOTE mechanism compares the actual satisfaction to the potential satisfaction. A schematic representation of the process described above, as Deci (1975) depicts it, appears in figure 3-8. It includes

feedback loops as well as the main sequence of actions.

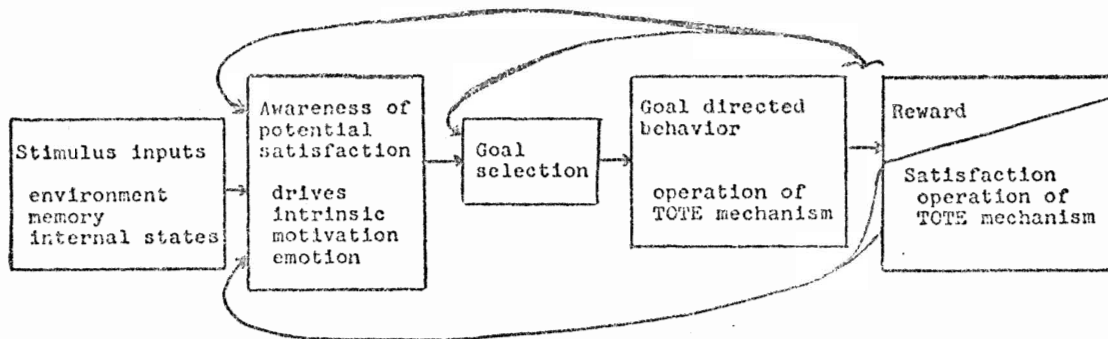


Figure 3-8. A cognitive conception of intrinsically and extrinsically motivated behavior (taken from Deci, 1975, p. 122).

In summary, it may be said that people are energized from three possible areas. Individuals are motivated by the need to be competent and self-determined, unless this is interrupted by primary drives or emotion. Thus, intrinsic motivation is the consistent energizer of behavior, and attainment of an intrinsic goal does not reduce the need, as it continues to operate. Satisfaction of primary drives and attainment of desired emotional states does terminate goal-directed behavior. Intrinsic motivation differs in other important ways. First, the increase in goal difficulty, up to a certain optimal level (Deci, 1975, p. 117) will increase intrinsic motivation, but will decrease extrinsic motivation. Second, intrinsic motivation is mediated by the person and as a result, it is not dependent on outside, external reinforcement. The

implication of this self-energizing nature of intrinsic motivation will be considered more fully later.

The Development of Intrinsic Motivation

Earlier in this chapter, the development of cognitive structure and the influence of the social-environmental subsystem was reviewed. The development of the person, from the first stirrings of the reflexes in the reptilian brain (MacLean, 1973), is an evolving process that moves toward increasing complexity and competence. The process of developing schemata through assimilation and accommodation described by Piaget (1959) continues throughout life, as the need for competence and self-determination energizes the person's behavior. It can also change in form as it is influenced by the environment. As Deci (1975) indicated,

As a result of interactions with the environment the basic undifferentiated intrinsic motivation becomes differentiated into specific intrinsic motives such as achievement, self-actualization, etc... intrinsic motive structures continue to change throughout life as a result of interactions with the environment (p. 92).

Hunt (1965, 1971) has developed an outline of three stages in the early development of intrinsic motivation. In the first stage which lasts from birth to approximately four months, the infant is responsive to pain, homeostatic needs such as hunger, and changes in the environment. The responsiveness to changes in the stimuli, the orienting

response (Sokolov, 1963), has been found in all species studied, and appears to be the motivational basis for coordination of response. The input of the moment is the standard of reference at this point, as the child seems capable of maintaining positive events, and is motivated intrinsically to do so. This responsiveness is the earliest type of intrinsic motivation, and as Hunt (1965) indicated, "something heard becomes something to look at" (p. 258).

It is at the second stage, which lasts from approximately five to eight months, that the child begins to learn how control of his own actions will produce pleasurable sights and sounds. This is also a stage of intentional, goal-directed action. At the third stage, around nine months, the child becomes interested in the new and the novel, and begins to separate information processing from action. He also seems to have learned that he can make things happen by taking action. As a result he seeks new stimulation to fill the space left by the semi-automatic responses which are now too familiar to offer stimulation. Deci (1975) sums up the developmental plateau this way:

This interest in the novel is, of course, the basis of adaptive behavior. No longer is the child responding to inputs and seeking continuation of the familiar; he is now beginning to act on the environment in new ways. The child begins to recognize and understand more aspects of the environment, which is essential for his feeling competent and self-determining in relation to the vast surroundings (p. 74).

As was described in the earlier section on the social-environmental subsystem, the individual's transactions with the early environment have a lasting effect. The child's intrinsic motivation continues to evolve into particular forms of motivation, as a result of encounters with the environment. White (1959) considered that specific motives such as cognizance, mastery and achievement develop. When a child encounters uncertainty, he will attempt to resolve it, according to Kagan (1972b). If the environment, in the form of parents, attempts to resolve the uncertainty too quickly, the child will rely on the parents to solve problems, and a dependency motive results. At the other extreme are those who have learned that other people are not helpful in reducing uncertainty, and they withdraw from others. Still others develop motives for recognition and approval, as they learn to seek praise when there is high uncertainty. Dominance, autonomy, and other social motives seem to develop as secondary motives from experiences in the environment (Kagan, 1972b). Emotions and values being developed in the second brain (MacLean, 1973) also have an interactive effect as described earlier, in the section on the operation of intrinsic motivation.

Maddi (1970) developed a conceptualization of three needs, based on the earlier physical, social and cognitive subsystems described before in this chapter. He called them biological, social, and psychological, and considered, as

did Maslow (1971), White (1959) and deCharms (1968), that people search for meaning and for effective transactions with their environment. He also described two personality types that result from different background experiences, and called these the conformist and individualist respectively. In the first, the higher-order mental needs would be suppressed, resulting in the person avoiding the use of imagination and abstraction, because they would be associated with anxiety. Instead, the individual would have high needs for approval and conformity. This would be similar to Elkind's (1968, p. 154) description of adolescent egocentrism, where the power of the peer group is strong enough for the person to do things against his own best interests, to meet his concern about the reactions of others. At the other extreme can be found the kind of personality that Maddi (1970) saw as the individualist. These people perceive themselves to be competent and self-determined, active and changing, motivated by higher-order needs, yet sometimes have doubts because of the constant change. Deci (1975) interpreted the development of intrinsically motivated needs in the following way:

When supported and encouraged, the basic need seems to differentiate into motives for self-fulfillment, self-reliance, independence, and achievement. If the child is not supported, it differentiates more into needs for approval, acceptance, conformity, and so on (p. 89).

A similar developmental sequence is described by Harvey et al. (1963, p. 118) who plotted the development of four levels of

thinking, from concrete to abstract thought. He also stressed the value of development at the higher level of abstract thought. A related concept, covered earlier in this chapter, is Rotter's (1971) "locus of control". He considers that negative experiences in the environment will decrease intrinsic motivation and external control which is, in part, a defensive response to failure (Deci, 1975, p. 91). As Rotter's work suggests, the person's continuing life experiences will have an effect on intrinsic motivation and feelings of internal locus of control. For example, the negative reversing effects that prisons, concentration camps, isolation, and religious cults can have on people is well documented (Bettelheim, 1943; Schein, 1956; Zimbardo, 1975). This is also the case with evidence on the effect of authority, group pressure, and restricted environments (Asch, 1955; Milgram, 1963; Shurley, 1960). While the effects reported in the foregoing research were such that intrinsic motivation and internal control were reduced, there is another side to the picture that is more positive. This concerns the means available, through education and experience, to develop or enhance intrinsic motivation and internal control (Alschuler, 1972; Argyris, 1962; Diamond, 1973; Hill, 1978; Smith, 1970). More will be considered on the various means available for encouraging intrinsic motivation in the next chapter.

Operationally Defining Intrinsic Motivation

One of the major difficulties that seems to mitigate against operationally defining intrinsic motivation at this point in time, is the variety of different approaches researchers and practitioners alike, have taken in conceptualizing the need and developing instrumentation to match their description. The resulting semantic confusion has sent researchers on their separate ways without the benefit of a systematic metatheoretical base. Deci (1975) was one of the first to offer a conceptual model that can be operationalized. A coordinated approach that unites the divergent views is much needed. As Broedling (1977) suggests, the term intrinsic motivation has been used "as a catchall explanation whenever behavior occurs which cannot be clearly linked to external outcomes" (p. 268).

Deci's (1975) model of intrinsic motivation conceives intrinsic motivation as a continuous on-going process that may be interrupted and reduced by extrinsic motivation responses to the external rewards in the environment. Saleh and Grygier (1969) define intrinsic factors as "those directly related to the actual performance of the job" (p. 446), and extrinsic factors related to the job environment. This is similar to Herzberg's (1966) concept of satisfiers and dissatisfiers, with the higher-order needs on Maslow's (1971) hierarchy equivalent to satisfiers and intrinsic motivation, and dissatisfiers and external motivation

comparable to the lower-order needs on Maslow's (1971) hierarchy. Slocum (1971) places the emphasis on intrinsic rewards associated with higher-order needs, and pay, promotion, and security associated with lower-order needs. Wernimont (1972) considers intrinsic and extrinsic needs as two separate concepts, with intrinsic representing internal feelings and extrinsic factors external situations.

Considered together, some common elements seem to emerge from the various interpretations considered above, and while they are mostly taken from the field of organizational psychology, there is a certain amount of overlap with other researchers. The picture of a person whose main response is intrinsically motivated but who also responds to external stimulation emerges. This person would have an internal locus of control, and feelings of competence and self-determination from repeated experiences of having been able to make a difference through their own actions. They would also tend to seek optimal challenges and conquer them with the confidence of one having had a history of being able to generate feelings of competence and self-determination through solving problems and challenges in the past. The reward is this internal pleasure, rather than external operant reinforcement.

Dyer and Parker (1975, p. 457) classified the choices of industrial and organizational psychologists' selection of intrinsic outcomes. On the basis of this summary, they found

that only feelings of self-fulfillment and worthwhile accomplishment were consistently chosen as intrinsic outcomes ninety percent of the time. Based on these and others high on the list, it would seem reasonable to expect that intrinsically motivated persons are those who have had many opportunities to feel their accomplishment has been worthwhile; they would have feelings of self-fulfillment; pride in work; engage in personal growth and development; seek opportunities for independent thought and action; and be found to operate more at the upper level of Maslow's (1971) hierarchy, and Herzberg's (1966) "satisfier" level.

It would also be reasonable to assume that the kind of person described above would seek tasks that allowed for achievement, provided optimal challenge, offered opportunities for independent thought and action, gave positive feedback on success, offered variety, presented opportunity to resolve uncertainty, and held the person responsible for results, while at the same time ensured a minimal amount of external control.

As can be seen from the description above, a clearly agreed upon set of operational definitions for intrinsic motivation is still evolving, and a considerable amount of work is still needed before agreement is reached on what constitutes an acceptable definition. Despite the lack of an adequate and agreed upon conceptual base, however, a large amount of instrumentation is available. These instruments will be reviewed next.

Instrumentation

Instrumentation developed at this early stage carries with it the disadvantages that go along with the absence of an agreed upon theoretical conception and the variety of definitions given for the same construct. It is against this background that Broedling (1977) summarized the existing instrumentation used by organizational psychologists. She classified the various instruments according to those that considered intrinsic motivation as a trait, a state, or as an interaction between the trait and the situation.

Trait instruments are designed to measure the person's orientation toward work, or their specific personal traits. Intrinsic motivation on these instruments is perceived as a fairly stable personality trait. Some representative instruments are listed:

1. The job attitude scale (Saleh, 1971) is comprised of six intrinsic and ten extrinsic job-related statements. It is based on a concept of intrinsic motivation that has no apparent reward except the satisfaction that comes from the activity itself.
2. The survey of work values (Wollack, 1971) is based on the assumption that there is a link between intrinsic motivation and the Protestant work ethic.
3. The job orientation inventory (Blood, 1973; Brief and Aldag, 1975) is an attempt to measure an individual's preference for organizational rewards.

The above three scales do not have convergent validity, and they measure different things. Work values are the concern of the first two scales, while the latter measures reward preference. The work group is included on the second one, but the job attitude scale does not include it (Broedling, 1977, p. 270). The next group listed, attempts to measure intrinsic and extrinsic motivation as a personality characteristic.

4. The Ontario Test of Intrinsic Motivation (Day, 1971), is a one hundred and ten item measure of specific curiosity.
5. The Internal-External Locus of Control Test (Rotter, 1966) measures the extent to which a person considers themselves or others to be in control of events.
6. The origin-pawn concept (deCharms, 1968) suggests that those who perceive themselves as personally causing action are intrinsically motivated.
7. The inner-directed, other-directed concept (Riesman, 1950) while also not a test, follows the same thinking as deCharms and lists qualities deemed to be associated with each.
8. Tendency to approach success and avoid failure (Atkinson, 1964) was described earlier in this chapter when it was incorporated into Deci's (1975) conceptualization.
9. Achievement motivation (McClelland et al., 1953) has also been discussed earlier, and was considered as a specific intrinsic motive. Both Atkinson and McClelland use the Thematic Apperception Test (Murray, 1938) as a means of

measuring these motives.

10. Higher-order, lower-order need satisfaction (Maslow, 1971) is another way to conceptualize the tendency for the person to gain satisfaction through intrinsically-related higher-order needs or extrinsic deficiency needs.
11. Motivation-hygiene theory (Herzberg, 1966) is another variation of Maslow's (1971) hierarchy. This theory and voluminous research had a significant impact on the intrinsic-extrinsic dichotomy, with motivators located in the upper level of Maslow's (1971) hierarchy, and dissatisfiers in the lower level.

All these approaches have common features. They all measure growth or self-actualization trends, and they relate either directly or indirectly to a person's feelings of control of the self and the environment. However, none of them are based on the same meta-theoretical model. Instead, they seem to have diverged in a variety of directions and developed a number of approaches to the same problem, likely as a result of the strong over-emphasis on the extrinsic aspects of motivation that has been prevalent. This concern has currently been expressed (Avila & Purkey, 1966; Broedling, 1977; Dyer & Parker, 1975; Steers & Mowday, 1977) and convergence on a more coordinated, systematic approach, based on a sound theoretical conception will likely be forthcoming. This thesis is an attempt to bring some of these views together in a conceptual model for community

college education. Instrumentation and related concepts that picture motivation as a state will be reviewed next.

Instrumentation that attempts to measure the person's motivational state places the emphasis on how it relates to characteristics in the immediate situation. As a result, attempts are made to identify how the person and the environment interact, with researchers concentrating on either the parts or the combined result.

12. Rewards controlled by the person or the organization (Porter & Lawler, 1967).
13. Minnesota Satisfaction Questionnaire (Weiss, 1967) has intrinsic and extrinsic subscales, used by Pritchard and Peters (1974) to discover that intrinsic satisfaction was predicted more by the job content than the employee's interest.
14. Autonomy on the job (Deci, 1975) is a necessary prerequisite to intrinsic satisfaction.
15. Leadership practices that allow control over work (Katz & Kahn, 1978; Likert, 1976; Steers & Porter, 1975; Marrow, 1967) has been well researched as a means that frees the individual to engage in behaviors that bring intrinsic satisfaction because of the control this allows the individual to have over his work.
16. Reward contingencies (Deci, 1975b) that are derived externally, can have the effect of reducing intrinsic motivation. Intrinsic motivation is completed, instead,

- without any apparent external reward involved. Intrinsic motivation is thus defined operationally as the amount of free choice time spent on an experimental task.
17. The expectancy model (Vroom, 1964) has been adapted by several investigators who have attempted to trace the connection between internal task goals and task accomplishment (Campbell, Dunnette, Lawler, and Weick, 1970).
 18. Intrinsic activity value (Turney, 1972) is a measure of the value employees give their tasks without reference to external outcomes.
 19. Self-perception of intrinsic motivation (Calder & Staw, 1975) can be looked on as a way individuals attribute reasons for their behavior.
 20. External rewards (money) as part of the task (Kruglanski, et al., 1975). They found that when money was perceived as part of a game, it enhanced intrinsic motivation. This was likely a result of the fact that it could be used as a feedback indicator on the success of reaching the goal.
 21. Interaction between situational characteristics and personal traits (Cascio, 1973; Hackman & Lawler, 1971; Hulin & Blood, 1968; Robey, 1974) have been investigated. Instruments such as the choice motivator scale (Haywood, 1971) have been developed and adapted, and interaction continues to be a potentially valuable area on which to base further studies.

The majority of the instruments, research data, and conceptions provided above represent piece-meal attempts to capture the essence of intrinsic motivation in operational terms. They have not, however, come to grips with the total complexity and the interrelationships involved. Two approaches have attempted such an overall scheme, and they are represented below:

1. The Job Diagnostic Survey (Hackman & Oldham, 1975) is an attempt to measure four core dimensions of jobs (variety, autonomy, task identity, and feedback) as they interact with the person's internal motivation.
2. Cognitive Evaluation Theory (Deci, 1975) has been the major focus of the conceptualization of intrinsic motivation described in this chapter. It was chosen because it offers a conceptual starting place for the development of further hypotheses and operational definitions; and because it offers a logical and systematic framework on which to build with the empirical and theoretical evidence already available. In addition, Deci has integrated the important research of neuropsychologists like Pribram (1971), the ideas of developmental psychologists (Bruner, 1973; Elkind, 1974; Piaget, 1959), the research of social psychologists (Kagan, 1972; Schachter, 1962), and the findings and ideas of organizational psychologists (Argyris, 1962; Likert, 1976; Vroom, 1964), to mention a few examples. He also is cognizant of the implications of intrinsic motivation in education, and his formulation

comes closest to the systems approach established earlier in this chapter.

Needed: Intrinsic Motivation

The preceeding pages have attempted to sketch a picture of the person as a living system whose destiny is to move towards ever-increasing complexity. It is a picture of an active, aware individual, as part of other individuals, reaching out to meet the challenge of a goal to be sought and conquered (Deci, 1975). It is an optimistic vision of man transcending his reptilian brain reflexes, and his paleo-mammalian brain conditioning, to reach for the potential his neomammalian brain promises. While the main energizer intended for man seems to be intrinsic motivation, external events are also important. This is especially true in the early years, when the influence of significant others is so dramatic. As the person reaches out to the wider natural system, he meets both the forces that he must struggle with in growing toward self-control and interdependence, and those that aid this movement toward increased complexity and self-fulfillment. The person who is intrinsically motivated may be hypothesized to be a person who is in the process of becoming (Rogers, 1961). Some of these hypothesized characteristics are listed next.

While existing research has not reached the stage of sophistication necessary to objectively classify a person as

being either intrinsically or extrinsically motivated (Brief & Aldag, 1977), or as internally or externally directed (Rotter, 1966), it is possible to raise a reasonable set of hypotheses that would describe qualities that are critical attributes of intrinsic motivation. One might reasonably expect that those who are intrinsically motivated would tend to seek challenges in order to fill the need to become competent and self-determined. Because they see themselves as being able to make a difference in a situation, they would be more likely to attempt to solve problems and remove roadblocks, rather than give up, or rely on others. Because they are more likely to find tasks that have an "optimal" level of difficulty (Walker, 1973) rewarding in themselves, they would be less likely to be preoccupied with deficiency concerns. This would free them to be involved and committed to the task and to the needs of those involved.

Intrinsically motivated teachers are likely to express behavior that originates in the intrinsic portion of the neo-cortex. This implies that their problem solving, analytical, and other thinking skills will be well developed, and they will derive pleasure from the natural challenge inherent in the teaching task. Because they have an internal locus of causality, they will likely perceive they can have more of an impact on students than those who perceive themselves as externally controlled. Because they have high expectations for themselves, these teachers are likely to have similar

expectations for students. While the effects of the self-fulfilling prophecy (Rosenthal & Jacobson, 1968) are still being debated, there seems to be general agreement that holding realistic positive expectation does have a beneficial effect on student learning.

Because of the tendency to seek optimal challenges, the intrinsically motivated person is likely to select tasks that have moderate difficulty (McClelland, 1953). This means that the situations they seek and conquer will be challenging. Moderate difficulty is a relative term, and what might be moderate to one person may not be to another. The accomplishment that is bound to come from this striving will also likely increase the desire for innovation and flexibility, and result in people who thrive on creative problem-solving and experimentation within realistic limits. Perhaps this is what serves as the fuel to energize the intrinsically motivated person. This means the rewards and sanctions typically used are neither necessary, or in many cases, desirable (Deci, 1975b).

The above description is a collection of tentative hypotheses that collectively would not likely represent a person. They may even be difficult to operationalize. On the other hand, they relate to the data covered earlier, and offer a background against which to consider the needs of the living system for such people or the characteristics listed. It also sets the stage for considering the advantages to be derived from having faculty who approach

these characteristics, and the likelihood of them being able to encourage the growth of these qualities in students.

The Needs of the Living System

According to Hill (1978), "internals are personal, academic, and social assets in our culture" (p. 48). It would seem that the intrinsically motivated person supplies the energy so necessary for a living system to be able to reverse entropy, and closed system thinking described in chapter one. The adaptive subsystem of the natural system can be well served by intrinsically motivated individuals, as they can be expected to take heterostatic action to explore, to grow, to learn, and to seek new challenges, and balance the homeostatic drive to relieve tension and maintain equilibrium. It is this "expansive and exploratory" (Bernard, 1978, p. 103) nature of heterostasis that a culture must keep alive and flourishing. Not only is human motivation and energy necessary to reach out to the unknown, it is also an important source of maintenance for social systems (Katz & Kahn, 1978, p. 3), as it ensures that the necessary energy and information will be exchanged between the system, and the larger environmental system. This is particularly important in view of the current behavior society seems to be evidencing. Intrinsic motivation is a force that can begin to reverse this trend and aid society in moving back toward the promise of fulfillment only the third brain is capable of.

The Needs of Education

Not only does society need more intrinsically motivated individuals, the educational system may not be able to survive as a viable agent of change without them. In chapter one, the educational function was portrayed as one concerned with the production subsystem function of transformation. In chapter two, this theme was continued, with a more complete description of the kind of transformation needed. The point was raised that the relationship between society and the educational system is a symbiotic one, and that the educational output of the college becomes a means for society to reverse or forestall entropy. The result is that society continues to flourish, and the output in the form of students from the college, is not only accepted, but is sought after as a necessary growing force for society. The need for the Ontario community colleges to balance the forces of control and stability with the forces for change and flexibility was also reviewed. In other words, it is necessary to examine the total internal functioning to ensure that it is consistent with the needs of society, as difficult as they are to define (see Laszlo, et al., 1977), and with the needs and resources available to achieve that adaptive and maintenance function internally. It is the contention of this thesis that intrinsically motivated individuals are needed by society, and that intrinsically motivated educators will likely be able to meet these needs. This means administrators who value

intrinsic motivation, and are aware of the climate under which it flourishes; it also means teaching faculty who are intrinsically motivated, and who can serve as models, and as active agents of change for students; finally, and most important, it means students who have the characteristics described earlier as intrinsically motivated qualities. The next section will review the data that lends support to the thesis that intrinsically motivated faculty are most likely to bring about intrinsic outcomes in students.

Needed! Intrinsically Motivated Faculty

The pulse of any college can be taken at the interface between the students and the faculty. In the final analysis, as the model in figure 3-9 suggests, what happens between the student and the faculty members with whom he interacts, will determine whether the short, intermediate and long term goals of the college will be met. This is not to imply that other parts of the system are not important, but they will also be measured by the society they serve, from the student outcomes resulting.

Student outcomes that progress toward internalization will be the subject of the next section. This developing competence will be reviewed along with the teacher personal and procedural characteristics that are hypothesized to have an effect on bringing them about. In addition, empirical research on effective teachers and the link to intrinsic

motivation will be reviewed.

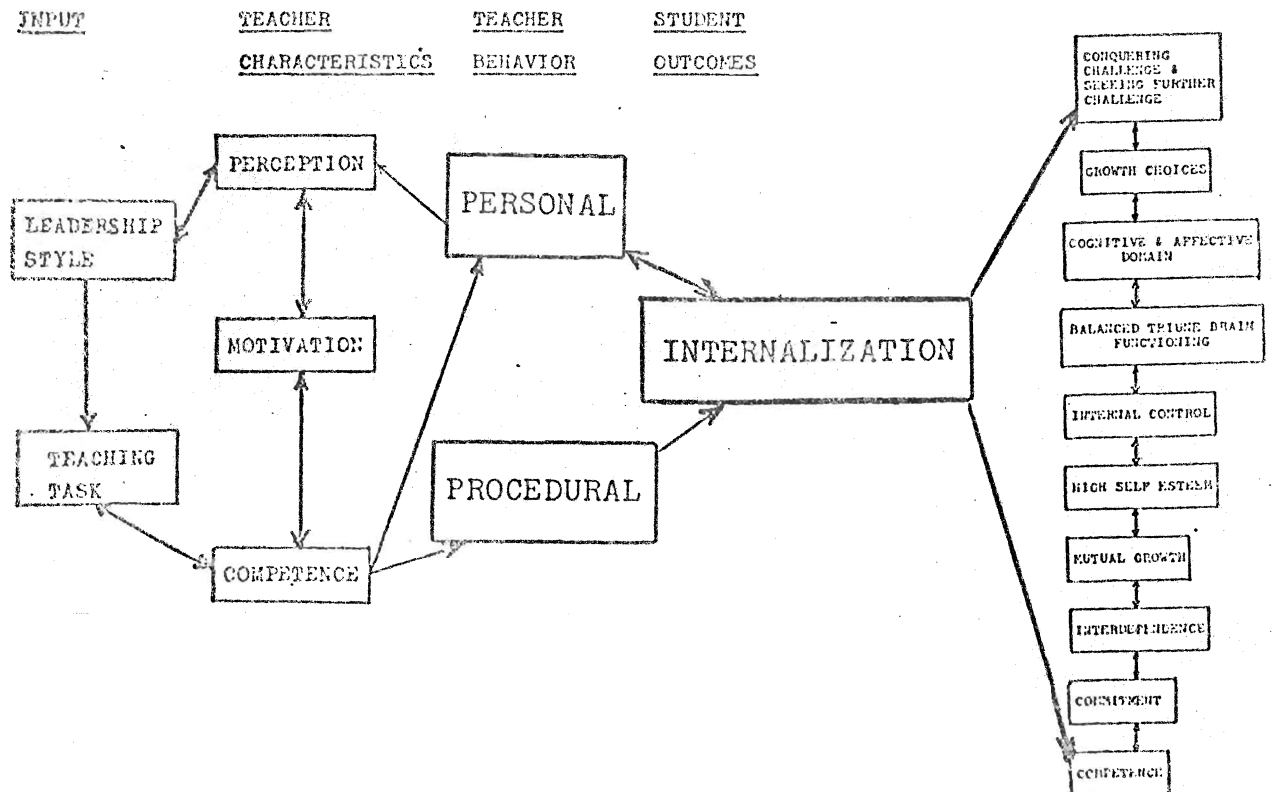


Figure 3-9. The teacher-student interface and internalization outcomes in an educational systems model context.

Despite the dependence the human being has on the social-environmental system in early life, the natural evolving condition seems to be one of moving towards ever-increasing complexity and self-control (Allport, 1955; Angyal, 1941; Argyris, 1962; Biehler, 1976, p. 343; Combs, 1976; deCharms, 1968, p. 269; Deci, 1975; Hunt, 1965; Land, 1973; Maslow, 1971; Mischel, 1974; Nuttin, 1973; Piaget, 1959; Rogers, 1961).

This tendency can be diverted or subverted along the way by the effects of significant others in the person's life. With the prolonged schooling and amount of time spent transacting with teachers, the educational system, as represented by these teachers, becomes a powerful force in the development of the individual. While the early formative years have a major effect on the growth and development of the individual, as described earlier in this chapter, the college years are also an extremely important formative time. As Perry's (1970) research indicated, the intellectual and ethical development is influenced during the early adult stage, when the third brain (MacLean, 1973) is ready to deal with the complexity of abstract thought. It is at this stage in life that the person critically examines his old brain programming (MacLean, 1973) and moves from the intellectual stage of dualism (Perry, 1970), if the social-environmental system nurtures such a transformation. It is also possible to reinforce outdated mental models that provide inaccurate versions of the world, and leave the person with the false security provided by closed system thinking. Encouraging students to move from the safe and apparently secure stage of dualistic thinking to the vague, ambiguous and often confounding position of relativism, and then through to commitment (Perry, 1970), requires teachers with the qualities that seem to be correlated with intrinsically motivated persons. The research of Braver and Barnett (1976) and Farley and Sewell (1975) emphasizes how influential models of behavior, like teachers

are in learning. Thus many items not on the curricula are taught in the daily interaction between student and teacher.

Student Outcomes

The process of educational development has been captured by Harrison (1972). He considers three systems of influence and their corresponding outcomes. This hierarchical model of learning proceeds, as Harrison describes it, from

Lower, more concrete, externally directed processes...by stages of development to higher, more abstract, internally directed processes (p. 319).

The lowest level is labeled compliance. This is an external system, with the teacher establishing expectations and administering rewards and punishment. At this level, external direction by the teacher is at a maximum, and the student learns

to devote most of his curiosity and energy to the manipulation of other people in his environment rather than to the manipulation and control of his physical world (Hutcheon, 1975, p. 12).

Typically, this will likely have a strong assist from former operantly conditioned second brain responses (MacLean, 1973). The student is encouraged to look outward, rather than inward for satisfaction. Describing how Dewey (1916) viewed the result of this type of learning, on a democratic society, Hutcheon (1975) wrote:

His point was that ways of behaving - even democratic procedures - tend to become habitual and mindless rather than reflective, unless the socialization process actively encourages reflection and inquiry (p. 13).

Reflection and inquiry are third brain (MacLean, 1973) responses. The compliance level, instead, is confined to second brain thinking that Perry (1970) has described as dualism, considered earlier in this chapter. The need for the student outcomes described is antithetical to this position, as the student is encouraged to become or remain passive and dependent. In a dualistic climate, the teacher and students typically adopt stereotyped roles of teacher and student that bypass third brain reasoning and understanding (Harrison, 1972, p. 305; MacLean, 1973). Instead of students who "own their learning" (Harrison, 1972, p. 307), we have, at this level, students who attempt to impress the teacher by regurgitating the teacher's favorite words, or comply socially by avoiding conflict and differences with other students because of the fear of losing their attention and affection, even though it may only be illusory.

While it is possible for an individual to remain at the compliance level, it is neither desirable or natural for the human being to do so. The first indication of movement from this position often is expressed in the form of counterdependence. At this stage, the student "struggles to free himself from control by others" (Harrison, 1972, p. 315). In so doing, the student may fight with friends, avoid assignments,

challenge authority, and the competence of the teacher. This is a natural course of events and will likely be followed by the next stage, identification. At this point in development, the student sees the teachers and friends he challenged and criticized as helpful sources of self-definition. It is at this point that the teachers after whom the student models his behavior, or the group that he identifies with, have their largest influence through direct example. It is at this stage that college students are attempting to find their social role and occupational identity (Erkison, 1968). This is the time when they need the feeling of "community" (Perry, 1970), with the faculty, and perceive them as worthwhile models to pattern after or compare with in developing their own concept of developing self. This identification is not confined to faculty members. It may mitigate against the person and the college intent as well as for them. As Harrison (1972) sums up the process,

The influenced person seeks the influence, out of his own needs for self-definition, rather than complying in return for rewards or in fear of punishment or deprivation. Another aspect of identification is the establishment of relationships in which one finds identity and self-definition through the way others act toward him. If I am a member of a group that treats me as likeable and worthy of friendship and trust, I will be willing to meet its standards and requirements to maintain the identity the group confirms (p. 315).

Hopefully the student will move through the compliance and identification stages to the highest level that Harrison

move toward disorganization or death" (p. 25).

Teachers who are successful at bringing about internalization outcomes in students use more than the qualities needed to have referent power (Cartwright & Zander, 1968, p. 266). It is important, however, that the teacher have these qualities that encourage the student to identify with him and adopt the most effective students as a reference group. In this way identification outcomes that lead to the next stage can be achieved. Teachers also need more than expert power (Cartwright & Zander, 1968, p. 267), which is the ability and competence that the student perceives the teacher has. This makes it possible for the teacher to exert influence on the student to move toward competence and self-direction. With this power, it is an obligation of the teacher to help the student move toward self-control and responsibility by assisting the student determine what he wants to become, assess his current competence and ability, and acquire additional competence. If the teacher is helping the student develop internalization outcomes the student will be free to seek information that will help him to move in the direction that is best for him. As Maslow (1971) said:

Education is learning to grow, learning what to grow toward, learning what is good and bad, learning what is desirable and undesirable, learning what to choose and what not to choose (p. 178).

Intrinsically Motivated Teacher Characteristics: Some
Empirical Data

The assumption on which this section rests is that intrinsically motivated faculty are more likely to be able to design and carry through strategies needed for internalization outcomes in students. A further assumption is that they will also be more likely to be able to diagnose the students' growth level, identify their unique qualities, and evolve ways to encourage the student to fulfill his own individual destiny and potential. As Harrison (1972) stated,

A great deal of design ingenuity is required, particularly when there are fixed principles, concepts, or skills which it is decided in advance are to be taught. The teaching style which facilitates internalization is one of competence, trustworthiness, and honesty. The teacher avoids judging the performance of the learner except against the latter's own standards. Instead, he provides accurate, objective but non-evaluative feedback in which he simply describes what the effects of the student's behavior are without praising or blaming. He provides information, ideas, and help in formulating concepts, rather than being a source of reward, punishment, and external control (p. 319-322).

Nor is this process as passive as one might be led to believe from the above quotation. The active element is described by Purkey (1978),

as the process of inviting students to see themselves as able, valuable, and self-directing and of encouraging them to act in accordance with these self-perceptions (p. vi).

The empirical research that follows relates the characteristics of effective teachers and intrinsic motivation, as defined earlier in this chapter. An attempt will be made to indicate that effective teachers and individuals have characteristics in common with intrinsic motivation. This data should be considered tentative, however, because of the difficulties currently experienced in arriving at an agreed upon set of operational definitions with which to measure intrinsic motivation. Some of the qualities that seem to be associated with intrinsic motivation are those that reflect internal control, self-determination, perceived competence, and autonomy. Activities such as the seeking of optimal challenge, increasing awareness, problem-solving, and innovation also seem to be found with those intrinsically motivated. An attempt will be made in the following to review the existing research that has attempted to find empirical evidence for qualities related to intrinsic motivation.

While the major focus is on college teaching faculty, evidence will be sought in other teaching areas, and from business. This is both because the majority of studies completed so far have been for teachers at other levels, and because similar qualities are evidenced in teachers at any level. Business managers and professionals will also be included, where appropriate. The assumption is made that the results can be generalized, at this tentative stage.

1. Personality Correlates with Internal Locus of Control.

Hill (1978) recently summarized research evidence on the internal dimension of the internal-external locus of control continuum identified by Rotter (1966). As a result of reviewing over fifty studies, he found that internality correlates with: personal well-being, confidence, high self-esteem; being active, less impulsive, and likely to use planning and foresight; being able to overcome learned helplessness, viewing themselves more objectively, seeing humour in their predicament, and accepting more responsibility for their success and failure; reacting more constructively to threat, being more sensitive to environmental cues, and having a high degree of functional intelligence; they are also more likely to have insight, be less dogmatic, and while they seek control or influence, they are less likely to use violence or coercion in interpersonal relationships.

2. Personality Characteristics of Superior Teachers.

Burkard (1962) asked the students of "Sisters" in a Catholic school to rate their teachers. He then gave the teachers a TAT (Thematic Apperception Test) to discover their attitudes. He found that superior teachers had an internal locus of control, and felt failure could be overcome by their own efforts. He also found that they had a responsible, ethical view of life, and a positive view of others. Some validity questions need to be asked about this study. First, the student questionnaire, and

the scoring technique employed in the TAT need to be assessed on validity and reliability measures. Secondly, it is doubtful that the results can be generalized from such a restricted sample. At best, these results can only give us general impressions.

3. Characteristics of Six Thousand High School Teachers.

A well publicized study was completed by Ryans (1960) in an attempt to identify successful elementary and high school teachers. Using the critical incident method, he developed a questionnaire (figure 3-10) for observers to use to record classroom process. He also identified superior teachers through reports by students, supervisors, and through their own self-reports. He found that teachers who were rated as more successful appeared to be more organized, responsible, understanding and stimulating. While Ryans stressed the importance of the overall school system, the particular school's educational philosophy, the characteristics of students, and the course level and content as factors he concentrated on process and method in the classroom. No attempt seems to have been made to include other features of the educational system as a dynamic interdependent functioning whole. This approach seems to be typical of the early studies on teacher behavior, and is reminiscent of the "trait" approach to leadership that was found unsuccessful in selecting industrial supervisors (Gibson, Ivancevich & Donnelly, 1976, p. 184). Despite the support from

Burkard's (1962) study that essentially confirmed his results, both researchers seem to have completely eliminated goals for this warm, supportive, responsible person to achieve.

CLASSROOM OBSERVATION RECORD										
9-22-51										
TEACHER CHARACTERISTICS STUDY										
Teacher	No.		Ser.		Class or Subject		Date			
City	School		Time		Observer					
PUPIL BEHAVIOR										REMARKS:
1. Apathetic	1	2	3	4	5	6	7	N	Alert	
2. Obstructive	1	2	3	4	5	6	7	N	Responsible	
3. Uncertain	1	2	3	4	5	6	7	N	Confident	
4. Dependent	1	2	3	4	5	6	7	N	Initiating	
TEACHER BEHAVIOR										
5. Partial	1	2	3	4	5	6	7	N	Fair	
6. Autocratic	1	2	3	4	5	6	7	N	Democratic	
7. Aloof	1	2	3	4	5	6	7	N	Responsive	
8. Restricted	1	2	3	4	5	6	7	N	Understanding	
9. Harsh	1	2	3	4	5	6	7	N	Kindly	
10. Dull	1	2	3	4	5	6	7	N	Stimulating	
11. Stereotyped	1	2	3	4	5	6	7	N	Original	
12. Apathetic	1	2	3	4	5	6	7	N	Alert	
13. Unimpressive	1	2	3	4	5	6	7	N	Attractive	
14. Evading	1	2	3	4	5	6	7	N	Responsible	
15. Erratic	1	2	3	4	5	6	7	N	Steady	
16. Excitable	1	2	3	4	5	6	7	N	Poised	
17. Uncertain	1	2	3	4	5	6	7	N	Confident	
18. Disorganized	1	2	3	4	5	6	7	N	Systematic	
19. Inflexible	1	2	3	4	5	6	7	N	Adaptable	
20. Pessimistic	1	2	3	4	5	6	7	N	Optimistic	
21. Immature	1	2	3	4	5	6	7	N	Integrated	
22. Narrow	1	2	3	4	5	6	7	N	Broad	

Figure 3-10. Classroom observation record form (taken from Ryans, 1960, p. 86).

A cursory appraisal of figure 3-10 reveals that the assumption seems to have been made that if pleasant communication occurs in the classroom, results will automatically follow. A systems view would seriously question this premise. More will be considered on this in later chapters.

4. Characteristics of Intrinsically Motivated Male Public School Teachers in Ontario.

Saleh and Janz (1977) used the Job Attitude Scale (Saleh, 1971) with a sample of sixty-eight male public school teachers. They found a correlation between those who scored high on the intrinsically oriented questions and characteristics such as above average intelligence, high tolerance and social presence. These teachers also were more achievement oriented, took more risks, and were found to "engage in challenging tasks even if they don't particularly like them" (p. 20). While this lends further support to the findings of Ryans (1960) and Burkard (1962), these results are correlational and do not identify a cause and effect relationship.

5. Internals as Information Seekers.

Phares (1973) found that those with an internal locus of control are less persuadable, and make greater attempts to seek relevant information. This thesis was followed by Wicklund (1974) who pointed out that people will strive to restore freedom of control through a variety of means. Wolk and DuCette (1974) found that internals are more

efficient information processors, and are superior in incidental learning. These research findings help to point out that internal locus of control measures and these characteristics are found together. Further clarification is needed to determine if a cause and effect relationship exists.

6. Focus of Attention.

Di Nardo and Raymond (1978) found that a small group of subjects who scored high on internal locus of control were also able to focus their attention on a meditation task easier than externals were.

7. Teachers Who Were Aware and Alert.

Kounin (1970) considered studies of teachers at all levels, and concluded that teachers whom he called "withit", were able to monitor situations as they occurred, and were therefore more able to spot problems before they became uncontrollable, and as a result, were more likely to handle problems calmly and effectively, and less likely to blow up.

8. Persistence at Work and Intrinsic Needs.

Meir and Barak (1974) gave teachers and other professionals intrinsic-extrinsic need inventories. They concluded that those who scored high on items of intrinsic motivation also were found to be persistent on a task and would stay at it longer than those who score low on the intrinsic scale.

9. Role Definition and Teacher Success.

Brophy and Evertson (1976) studied a sample of successful grade three teachers. They found that the successful teachers were enthusiastic about the teaching job, and responded to problems by considering what they might do to personally control them. It also became apparent that teaching involves a synthesizing of a large number of variables, and behaviors that the teachers had mastered. Those "teachers who were more successful in producing student learning gains tended to have high expectations and to assume personal responsibility for making sure that their students learned" (Brophy & Evertson, 1976, p. 85). The focus was on preventing problems before they started. The teaching job was seen as a complex dynamic one that has no magical keys or panaceas for solutions.

10. Teachers, Educational Administrators, and Business Managers Compared.

Miskel (1974) used the Work Components Study Questionnaire (Borgatta, et al., 1968; Miskel & Heller, 1973) on a sample of 432 college-educated teachers, 118 educational administrators, and 192 business managers. He compared the propensity for risk, and the intrinsic and extrinsic factors in these three jobs, and found that all three groups desire opportunity for creativity and responsibility. Business managers' attitudes favoured high risk and were less concerned about extrinsic factors. Teachers, on the

other hand, indicated a high concern for security and extrinsic factors, with a corresponding low-risk orientation. The educational administrators appeared somewhere in the middle, with a high concern for security and extrinsic factors, similar to the teachers, and a preference for intrinsic factors with risk attached, which is similar to the business managers. While earlier research was cited that seemed to indicate teachers have a higher security orientation, and are less aggressive than business managers, no indication was given as to the climate the subjects worked in. While the effects of work atmosphere will be considered in detail in the next chapter, the findings of Kaufman (1974) are worth considering at this point. He found that professional engineers who were given early work challenge tended to contribute early and maintained competence and performance throughout their careers. This seems to lend credence to the notion that human beings respond to challenging environments.

11. "Internal" Teachers and Control.

Janzen, Beeken, and Hritzuk (1973) in a study of 80 elementary and senior high school teachers, who were attending an advanced psychology course at the University of Calgary, found that the "internal" teacher desired more control of the environment than did the "external" teacher. The internal teacher was pictured as dominant, assertive,

independent, and efficient. The active assumption of responsibility by internals was also found to be coupled with confidence, a willingness to comply with the rules, and a healthy attitude towards dealing with potential stress. A rather surprising finding was the lack of willingness on the part of the internals to give student autonomy, and control. External teachers, on the other hand, allowed more student autonomy. This tends to create a less responsible and demanding situation, however, and also fits in with the other findings about externals. They were found to be more anxious, more neurotic, less dominant, less assertive, more dependent, more dogmatic, and apathetic. These results would lend support to the interpretation that externals allowed more autonomy, so as to avoid the responsibility of dealing with student growth from the dualistic stage of intellectual development (Perry, 1970) since this requires a large amount of teacher involvement (Hunt, D., 1971). This process is described by Rogers (1969) when he described the way a sixth grade teacher recognized and dealt with the problems of encouraging intellectual development through structure.

Some children continued to be frustrated and felt insecure without teacher direction...I began to realize that although the children involved may need the program more than the others, I was expecting too much from them, too soon - they were not ready to assume self-direction yet. Perhaps a gradual weaning from the spoon-fed procedures was necessary (p. 15).

This is one explanation of why those who scored high on Rotter's (1966) internal scale, also desired more control of their environment. In the systems context, it may also be useful to find out if the teachers who participated in the study had relatively little influence in their school system. If this was the case, their emphasis on control may stem from "influence deprivation". Another possibility (Novak, 1978b) may be the strong need internals have to share information and experiences with others. This would tend to increase the amount of time they would spend in interaction as compared to the recipients. More data is needed to adequately interpret this study.

12. Related Studies.

Robey (1974) found that college students with intrinsic value structures preferred an enlarged version of the task, and wanted more decision-making. Johnston (1974) studied TAT responses of 39 professional consultants, and found that those with an active personality and strong task orientation perceived they had an effect on the organization and expressed greater satisfaction.

Krogstad (1975) studied teaching accountants, and found that most were motivated to get their certificate of management accounting for personal, intrinsic reasons.

Rotondi (1975) found that 107 non-managerial professional employees rated challenging work, chances for creativity, opportunity for using skills, opportunity to influence work decisions, and a chance for promotion and having

an equitable salary, as important. Related to these findings, Hackman and Oldham (1974) found that when jobs were high on the core dimensions of autonomy, task identity, feedback, and variety, employees who were at the higher levels of need satisfaction tend to do high-quality work, are only infrequently absent, and tend to be motivated and satisfied. Wood (1974) found that those who are intrinsically motivated do not respond to the usual external rewards or feedback in organizations. He deduced that they were capable of mediating their own rewards. This has considerable benefit for the organization. As Leff (1978) indicates,

Intrinsic motivation requires no monitoring for the administration of rewards and sanctions, relies on inherent rather than socially mediated feedback processes, enhances self-esteem and a sense of personal responsibility (p. 28).

The sample of empirical studies reviewed above seem to lend support to the hypothesis that intrinsically motivated faculty are indeed capable of bringing about the complex student outcomes called for earlier in this chapter. On the other hand, caution is necessary in making adequate assessment of the data at this point in time, when both the construct called intrinsic motivation, and the definition of the effective teacher have not been finalized. Against this tentative background, one might venture to say that the search for effective college faculty looks promising in the

direction of intrinsic motivation, as defined earlier. Much of the research centres around the use of Rotter's (1966) Locus of Control Concept, and while this is a major part of intrinsic motivation, it does not operationalize the total concept. Other studies referred to also use instruments taken from organizational psychology that do not represent the total construct. These problems will likely be resolved in the near future.

A much more serious problem is that of attempting to define effective teaching operationally. Extensive conceptual models are needed that enable us to capture the complexity of the task of teaching, and to let go of the security now provided through the illusory panacea of methods of teaching. College and university teaching effectiveness models have not only been bypassed, but the rating of teachers has largely been left to the subjective opinions of students. When the criteria for good teaching have not been established, one wonders what it is the students have been asked to assess. Little, if any support exists for student ratings (Chandler, 1978; Kulik & McKeachie, 1975; Lein & Merz, 1976; McKeachie & Kulik, 1975; Rodin, 1973). A more promising global assessment has been developed by Wasicsko (1976, 1978) whose instrument is based on the realization that perceptual inferences to be accurate must be made by persons having a high degree of inference skill, and this "depends to some degree on the perceptual orientation of the person making the evaluation" (Abstract).

Another promising approach to the identification of effective teachers is the concept of invitational teaching (Purkey, 1978), which has been further extended (Novak, 1978) to encompass the concept of the "invitational person" (p. 17). Many of the qualities called for in these approaches have been identified in the data reviewed earlier that relates to intrinsic motivation. These broader versions of the teaching job seem to be compatible with the data reviewed that indicates the intrinsically motivated teacher is likely to be creative, responsible, organized; have a positive view of others, and high expectations; is an effective problem-solver, anticipates difficulties, makes provision for them, and is persistent; who mediates his own rewards from the task itself, has an internal locus of control, autonomy, tolerance, social presence, and is above average intellectually.

Coupled with these positive findings are those that indicate a relatively high need for security and one for control. While the research on the latter is open to alternate interpretation, both of these needs could be transformed into positive qualities in the classroom through the influence of other parts of the organization. This is especially true for actions of administrators, and they will be considered in the next chapter.

Summary

This chapter has been concerned with the description of a new vision of man. A conception that has attempted to demonstrate man's nature and destiny, is movement toward internal direction and self-control. The central place of man as a system, transacting with other systems in both a feedforward and feedback relationship has also been explored. This notion of man transcends the conditioning of second brain responses, and moves, instead, to the focus on the promise of third brain understanding and awareness. The implication is that people do make a difference to themselves and others, and the more the human being learns about his own inner space, the more effective will be his transactions with other systems.

Four major subsystems were identified and described. The person was conceived as initiating the move from dependence to competence, interdependence and complexity, through the physical subsystem. The importance and the mechanisms through which the social subsystem can assist the person to "become" (Rogers, 1961) was also explored. The theme of the balance of homeostatic and heterostatic drive was related to the necessity to combat entropy. The importance of early nurturing actions by "significant others" in the person's social subsystem was highlighted. The point was stressed that people can learn that their actions make a difference or they can learn that they are helpless (Selig-

man, 1973). Nor is the influence of the social subsystem only of importance in the early years. It can have a dramatic and subtle effect throughout life. Like the wind's effect on the tree, the social subsystem must be such that the person is prepared by gentle nurturing breezes as a young sapling, to be able to take the buffeting of future gales. Even the most resilient tree, however, may be unable to survive a hurricane without damage. In the same way, the person functions best when the social subsystem is in tune with all the individual's subsystems. The importance of an adequate environment, in keeping alive intrinsic motivation in the adult years, will be considered in the next chapter.

The cognitive subsystem of the person was reviewed. It was conceived as the master control, and the system that holds the most promise for full humanity. The triune brain concept (MacLean, 1973) was used as an organizer for the premise that the cerebral cortex, as the highest centre of thought, is the area that deserves development and use. The connection between the third brain and the person's energy system, the motivational-emotional subsystem, was then explored in detail. The point was made that the motivated state seems to be the natural condition of the human being, and that the research evidence available seems to indicate that the neocortex and the energy from intrinsic motivation combine to influence the person to seek and conquer optimal challenge in the search for feelings of competence and self-determination. In addition to this

intrinsically motivated, consistent energizer, the person is also energized from primary drives and emotion that act as interrupt mechanisms.

The problem associated with the lack of a total conceptual model that synthesized the variety of empirical research results was also explored. Coupled with this is the problem associated with the lack of a set of operational definitions that related to a single conceptual model, and the corresponding effect of the lack of unified instrumentation. Deci's (1975) conception was presented and arguments raised for his view as one that holds the most promise.

In the latter part of the chapter, the personality qualities that seemed to be associated with intrinsic motivation were described. The need for these qualities by the total living system and by education were stressed. The contention of this thesis is that intrinsically motivated individuals are needed by society, and intrinsically motivated educators are best able to create the kind of climate that fosters intrinsically motivated individuals. This statement was amplified through a consideration of three possible student outcomes, with the qualities of internalization representing the level of outcomes needed by society. Finally, the characteristics of intrinsically motivated faculty were reviewed. Research evidence considered, pointed to the link between intrinsic motivation and effective teaching, and the likelihood that the qualities possessed by intrinsically motivated faculty would likely bring about internalization

outcomes in students.

The next chapter will continue this argument by exploring ways to nurture intrinsic motivation. It will also show how the teaching task and leadership style have an impact on educational transactions in a systems context.

CHAPTER FOUR

NURTURING INTRINSIC MOTIVATION

The first three chapters have put forward the notion that the development of intrinsic motivation is not only a natural progression for the human being, but an essential requirement for a society that wishes to reverse entropy, and be self-renewing. In a living system, at any level, the homeostatic need for stability and the heterostatic need for change must exist in symbiotic balance. Further, the alive, vital, and dynamic society and the intrinsically motivated person need each other since such a person combines caution with confidence. The person's intrinsic motivation can be developed to its potential in a society which nurtures it in the early stages, and establishes a climate in the later stages that allows for challenges to be sought and conquered. In return, the person whose intrinsic motivation is strong will benefit society in carrying out the necessary system functions mentioned in earlier chapters.

The function of the educational system has also been described earlier, as an influential means through which society can either produce student outcomes that reflect open or closed system thinking. Nor does this influence stop at the early grades. Indeed, as the earlier chapters have indicated, the college student is at the age where the third

brain (MacLean, 1964) has the capacity to deal with the complexity of abstract thought. Whether the person examines the set of unconscious responses built up over the years and moves toward multiplistic thinking (Perry, 1970), or has this old brain (MacLean, 1964) programming reinforced, depends to a large extent on the quality of the educational experience encountered at the colleges.

This chapter will examine the organizational climates that have an effect on the encouragement or discouragement of intrinsic motivation. The focus, indicated by figure 4-1, will be on the interface between teacher characteristics and leadership style as well as the nature of the teaching task.

Earlier, the assumption was made that internalization outcomes in the form of student output from the colleges are both desirable and necessary. A further assumption was made, that faculty who are intrinsically motivated are best able to diagnose the teaching challenge accurately and bring about these internalization outcomes. In this chapter the organizational system described by Likert (1977) as "System Four" will be reviewed and evidences presented that suggest this is an effective administrative climate to establish for the nurturing of intrinsic motivation.

Intrinsically motivated faculty, a challenging teaching task, and administrative actions that nurture intrinsic motivation, are only a part of the system. Sanford (1969) articulated a broader goal, when he stressed the holistic nature of the person, and the systems function of the colleges.

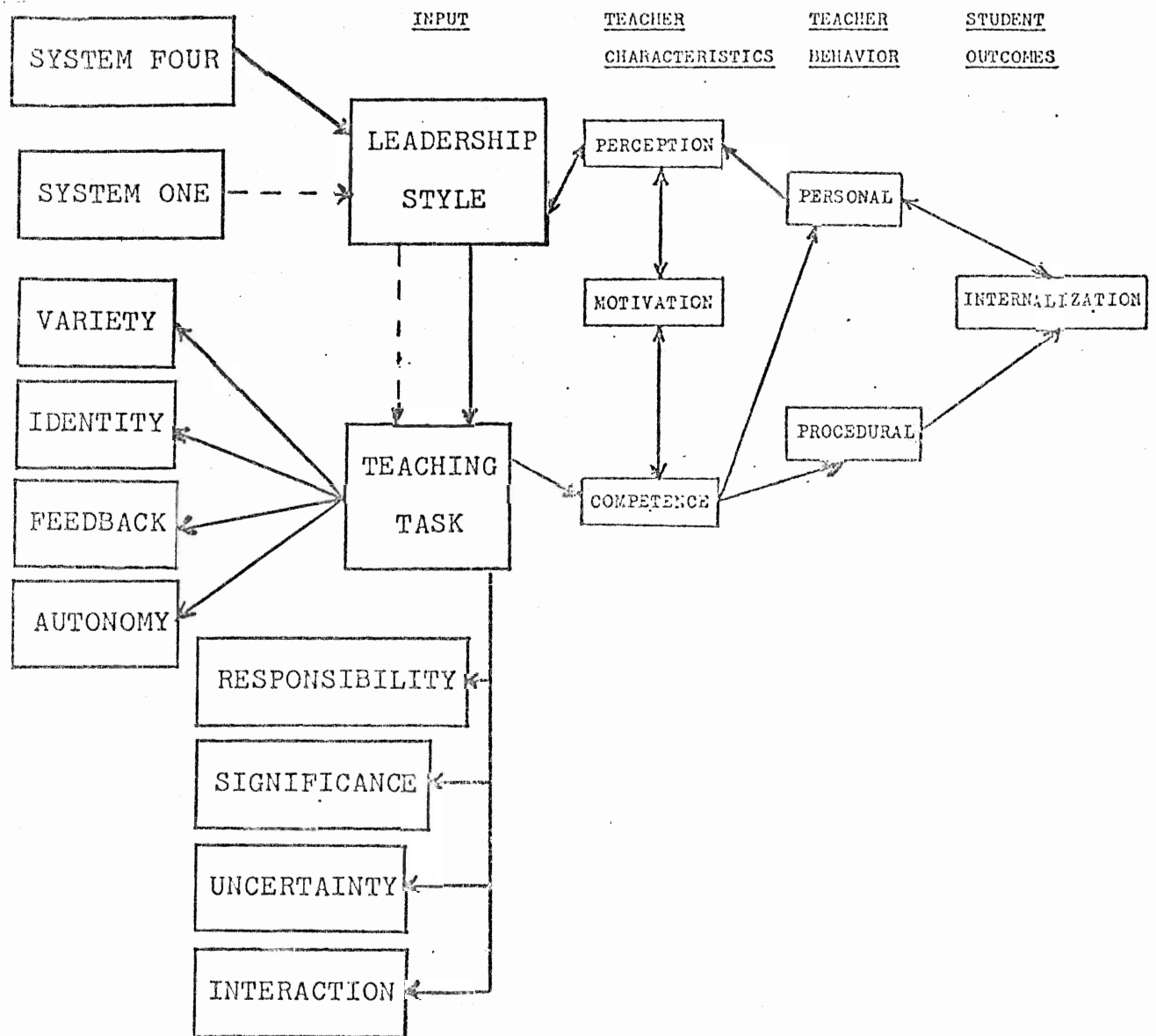


Figure 4-1. Leadership style and the teaching task as input in the systems model of educational transactions.

The kind of excellence that matters most for the college student today is excellence as a person. We must go back to considering the kind of person we want to see develop and the means by which we are to achieve this objective. Theoretical psychologists and practical educators would probably agree that complexity and wholeness are the marks of the highly developed man. By complexity we mean that his personality has developed in a great number of different parts, each having its own specialized functions; and by wholeness, that his many parts are in close communication with one another, and can, without losing their distinctness, work together to serve larger purposes (p. 17).

Ten years later, how far have we progressed toward this goal? This will be considered next, from both an educational and a wider environmental perspective. Since this was considered in detail in chapter two, the following will be a short summary, intended as an organizer around which to consider the need for a systems model directed towards the encouragement of intrinsic motivation and internalization outcomes.

Society, Education, and Management Theory: Where Are We Now?

As the Canadian society approaches the eighties, the problems evidenced leave no doubt that an abundance of challenge exists for both the educational system and intrinsically motivated individuals. Forces are tearing at the very fabric of our nation. At an individual level signs of the existence of a high proportion of externally motivated individuals are commonplace. The increase in alcoholism, divorce, vandalism, violence, materialism, drug abuse, strikes,

and general feeling of powerlessness seems to indicate the presence of a high proportion of individuals that perceive themselves in a situation that is beyond their control. A "downshift" to the second brain (Gevarter, 1977) seems to be occurring on a wide basis. The indicators seem to group into a response of withdrawal from problem solution, angry frustration, self-indulgence, and an increasing acceptance of these and other symptoms (chapter two) as the "way things are". These actions certainly qualify for what Seligman (1974) described as "Learned Helplessness".

In education we are now appearing to be on the return trip of what Blake (1964) calls the "wide arc swing". Having been in a climate variously called the open system, ungraded classes, progressive education, and other terms, for the last ten years, we now seem to be swinging back to the other end of the continuum, where talk abounds of going back to the basics, getting down to the business of education, and other euphemisms. To the student who has been counselled in the past to take easy courses to get better marks, and only graduation with a high school diploma is important, challenges to think must be confusing in the least, and fearful in the other extreme. It is this preparation that many community college students have been exposed to. Many have learned that control is in the hands of teachers and other authority figures, and if they do poorly, it is most probably the result of something outside themselves. Teachers, large

words, texts written at too high a level and concepts that require effort to understand are but a few of the areas that can be blamed for lack of understanding by students. Constant daily exposure to the low level of thought beamed to people through the television daily is perhaps one of the reasons why children define themselves as externally controlled. Another lesson, carefully, though unconsciously taught, has been that power comes only from joint action rather than individual understanding. One example, the Canadian Post Office, should be enough to support this position.

To the taxpayer, education must not only appear confused, as methods swing from one "new" approach to the "new old" one, but must also appear unrealistic, in the light of declining enrollments. Currently, they appear to have placed their faith in the practical approach of the community colleges (Secondary/Post-Secondary Interface Study, 1977). It is this feature that is both the strength and the weakness of the community college system, for if they do not deliver on the next objective (see chapter two and three) of developing internalization outcomes, this popularity will be short-lived. Education has become, to many, a means to an end. As a result, the focus is placed on the grades attained and the job at the end. Many times, if some learning is picked up along the way, it is incidental. So common has the maximum that the end justifies the means become, that organizations have been established to prepare and sell essays and

assignments to hand in for credit ("U of T Seeks", 1976; "Essay factory sells", 1979).

In the colleges the growing and developing stage has been replaced with one of consolidation (see chapter two). The standardization of methods in industry has made the mass production of goods and services possible at a lower cost and a faster rate. Only fairly recently, many years after, have the negative effects on the environment and on people been fully realized. Colleges are in danger of repeating the same mistakes as administrators model after industry, and attempt to apply the same kinds of efficient means our industrial society has used to get us into the difficulties we are currently experiencing. Educators have also borrowed from the recently popular conditioning methods that focus on second brain programming and external methods of control (see chapter three).

And what assistance has been offered by the behavioral sciences in regard to management models? Management theory and suggestions for practical applications have had a long history. It started with Taylor (1911) and Gilbreth (1911), who established time and motion studies and simplified work to the degree that it was possible to create machine-like efficiency. This was followed by Weber (1947), who focused on the structure of the organization in an attempt to build impersonality into the system. He was the one who coined the term "economic man" who was supposedly interested only in money. This view of man's motivation has lasted in some

form until today. The focus on the structural design of organizations was continued by Fayol (1949) and others who continued his ideas (Follett, 1940; Urwick, 1944). While this approach enjoyed a considerable degree of acceptance despite the lack of empirical support and the obvious rigidity and simplicity, it has also crept into the management folklore of today, and is used as a justification for many approaches taken. All of the management ideas presented above tend to be rigid, simplistic, and stress organizations without people. They represent what McGregor (1960) has described as Theory X assumptions. This is a view of man as lazy, short-sighted, self-interested, dishonest, and needing to be directed and controlled.

A major breakthrough in management theory was made by Mayo (1933) who found that attention influenced production. His investigations at the Hawthorne Plant of the Western Electric Company and his subsequent theory that a happy worker was a productive worker, however, merely replaced economic man with "social man". This approach was followed by a rush to instigate benefit programs and methods to humanize the work place. When the realization came that these external methods were not tapping the potential in employee motivation, the participative approach (McGregor, 1960) replaced it. Both tasks and people were then acknowledged important, and this was effective when employees were motivated by higher-order needs (Maslow, 1965). This approach has been

establishing common goals and directions are possible. The whole then becomes more than the sum of its parts and becomes a dynamic, interacting, viable unit. Perhaps this is why the systems approach seems to be preferred by organizational researchers today, and is what led Katz and Kahn (1978) to describe it in the following way:

Open system theory seems to us to permit breadth without oversimplification. It emphasizes, through the basic assumption of entropy, the necessary dependence of any organization upon its environment. The open system concepts of energetic input and maintenance point to the motives and behavior of the individuals who are the carriers of energetic input for human organizations; the concept of output and its necessary absorption by the larger environment also links the micro and macro levels of discourse (pp. 15-16).

In summary, one might say that organization theory has moved painfully from an attempt to deal with the person as a machine, then to efforts at eliminating the human influence through rigid rules and structure. This was followed by attempts to find which rewards or punishments would entice people to produce. These external methods of motivation have gradually given way to ones that are starting to recognize the complexity and worth of the human being. Unfortunately, practicing managers have not kept pace with the theoretical and empirical research, and many of the inadequate models of motivation described briefly above are still used in organizations today. Until fairly recently, educational institutions have not had the benefit of empirical research.

Their problems have been considered unique and they have tended to adopt the prevailing models from the past, without much concern for their efficacy.

In addition, management theory and research on the many variables involved has been fragmented. Concentration has been directed to one or two variables, while others have largely been omitted. This prompted Runyon (1973) to indicate,

Previous studies of management style have concentrated on the effects of autocratic versus participatory management on employee attitudes in a variety of industrial settings; however, the interaction between management style and employee personality has been largely neglected (p. 288).

He concentrated on the characteristic of internal or external control identified by Rotter (1966). Employees who scored high on questions related to internal control preferred participative management where their ideas were sought and they had some input into the decisions made. Those who obtained a higher score on the external scale desired more direction and were less involved in their work.

This chapter will examine the influence of administrative style on intrinsic motivation in faculty. These two variables will be considered within a total systems framework as two important parts of the system, yet operating in an interdependent way with other elements in the organization. This examination will start by reviewing some alternative courses of administration action and their effects.

Some Action Choices Available to Administrators

Since intrinsic motivation is mediated by the person himself, it may seem a contradiction to view administrative influence or action as a determining force in the existence of intrinsically motivated faculty. The key to understanding this possible confusion comes in the knowledge that invitations may be offered and accepted and still leave the person internally controlled and intrinsically motivated (Novak, 1978; Purkey, 1978). Administrators, like teachers, offer invitations that are either accepted or declined by faculty. These transactions take many forms and the skilled administrator, like the skilled teacher, can do much to enhance intrinsic motivation and commitment in the organization or destroy it. Applebaum (1975) has attempted to organize and summarize some of the actions that administrators can take that affect motivation. In considering these approaches, they can be best represented as a continuum along which the subtle shift from external methods of direction and control change to actions that establish the type of climate where the person can reward himself.

Motivation by fear (Applebaum, 1975, p. 47) is an external response located at the lower end of the continuum. It relies on security needs located in the mid-brain. Administrators who favour this method tend to attack the security need through actions that Herzberg (1968) has described as physical or psychological punishment. This

external method, in both its negative and positive forms, even when more elegantly described as aversive conditioning, and positive reinforcement (Skinner, 1953), is still attempting to activate old brain response (Gevarter, 1977), and bypasses the inherent potential in man. In view of the need for security evidenced in studies of faculty reviewed earlier, this "leadership by criticism" (Applebaum, 1975, p. 47) can become particularly troubling both for the individuals concerned, and the organization. Perhaps systems such as tenure and collective action by faculty unions are attempts to prevent the regressive responses that are likely to occur under this type of external "carrot or the stick" (Herzberg, 1968) approach.

Motivation by theory is yet another approach administrators might adopt. According to Applebaum (1975), becoming aware of conceptions such as Maslow's Hierarchy (Maslow, 1970) without transforming it to a practical set of actions can have the effect of preventing future progress. If managers assume they have the answer to motivation because they can describe the theoretical data provided by Maslow (1970), McGregor (1960), and Herzberg (1968) the gap between this necessary background, and action often becomes painfully evident. When this occurs, the manager will likely respond by dismissing theory as not relevant to the practical problems of the real world, and reach back into his unconscious conditioning for one of the outdated theories described earlier

to base actions upon. This is often passed off as the use of "good hard practical experience." For those who realize the function of valid conceptual data, however, this becomes a stepping stone to the next level.

Motivation by development (Applebaum, 1975) is another means available, and can be viewed from a number of perspectives. The administrator can assume that people develop best when they are secure and have self-respect. Actions based on this assumption will likely take the form of accepting individual differences, realizing the potent motivating effect the job can have, and helping to integrate the needs of individuals and the organization. At the other extreme can be found the manager who has found that his "practical methods" have not been successful. He assumes that employees don't understand his workable methods and must need training and development. Development approaches given or offered under these circumstances are perceived as yet another attempt at manipulative coercion, and treated with apathy or indifference. In some educational development efforts it may appear that faculty are against development, whereas the reaction is more likely against the paternalistic approach that decides what is good for people. As Baden (1976) indicated, teacher development must be based on the intrinsic desire to teach more effectively, and a problem solving approach to the identification of real problems has a better chance of success at faculty development.

Motivation by objectives (Applebaum, 1975, p. 48) is another means that holds promise but can be misconstrued through the defining of goals for employees, or establishing them in such a way that they have no relationship to the individual's needs and goals. Setting and achieving personal goals is a powerful intrinsic motivator of behavior. As pointed out in chapter three, people seek goals that contain an optimal challenge for them. As Applebaum (1975) indicates:

Individuals, in addition to need satisfaction must develop and follow their own blueprints or goals and when these goals are obscured or destroyed, motivation is destroyed as well (p. 48).

The administrator can either increase the possibilities for motivation by removing or not creating roadblocks in the way of goal accomplishment, or use management by objectives as yet another form of punishment and control.

Motivation by intrinsic need satisfaction (Applebaum, 1975) is the next approach considered. This is such a powerful source of energy that it is the main theme of this thesis, yet it is one that administrators have almost totally misconstrued because of the prevailing attitude toward external forms of influence. As a result, the motivating qualities of the job itself have been largely ignored or perceived as distasteful requirements that employees must be forced to accomplish. This led Leff (1978) to the

following comment:

Many of our social institutions seem to operate with a truncated and jaundiced view of human motivation. For example all too often it is assumed that workers or students must be coerced into productive behavior...It is especially important to consider the difference between sources of reinforcement deriving from behavior satisfying in itself and reinforcement that is extrinsically linked to behavior (for example, reading out of interest versus reading for a good grade). There are in fact many sources of intrinsic satisfaction that are being grossly ignored in our society. The prerequisites for opening up these sources of intrinsic motivation involve changes in our views of human nature and in our educational and economic systems (p. 11).

In his last level, motivation by management, Applebaum (1975) suggests that managers can have the most influence by changing their models of motivation to match with the reality of the employee's motivational world. This means a realization that motivation is internal, and that the manager's effect may only be incidental and his influence indirect. In summary, Applebaum suggests,

Effective managers are catalysts, not drill sergeants; they coach and not command, and finally motivate their employees by reality-centered management and an open climate which makes work an intrinsically rewarding experience for employees (1975, p. 49).

The next section will consider how to establish a climate that encourages intrinsic motivation. A special concern will be the transactions that occur between administration and faculty at the community colleges.

Environments That Increase Intrinsic Motivation: Some Findings

In chapter three, intrinsic motivation was described as the main motivating energy force of the human being. From this generalized motivation, more specific and detailed ones such as achievement and competence develop. In addition to this main motivation the person also is driven by more basic needs such as survival and safety that originate in the second brain and by emotion that serves to interrupt the on-going motivated state. These latter drives and emotions are important and in conjunction with intrinsic motivation add to the functioning of the person when they operate in symphony with the third brain and intrinsic motivation. Theoretical and empirical research that established this connection was reviewed earlier (Deci, 1975; Gevarter, 1977; Herzberg, 1966; MacLean, 1973; Maslow, 1971; Olds & Olds, 1965; Pearce, 1977; Piaget, 1959; Pribram, 1971).

The observation was also made that our society has tended to place the emphasis on lower-order second brain motives rather than the main motivating potential available through intrinsic sources. Even Skinner (1966), who is well known for his emphasis on second brain conditioning, admitted to the need for intrinsic motivation when he observed:

men are happy in an environment in which active, productive and creative behavior is reinforced in effective ways (p. 166).

Skinner's statement underlines the importance of the social system to the person. While creativity is a third brain neocortex response it also requires the cooperative support of the energy system of motivation and emotion located in the second brain, and the reflexive action of the first brain. The nature of this support is dictated by the second brain function as it is primarily concerned with "feelings and behavior that ensure self-preservation" (MacLean, 1973, p. 34). The second brain can thus enhance or retard innovation, and it is the area most influenced by external conditioning. Perhaps this is why exploratory behavior is likely to occur under conditions of safety and low drive arousal (Leff, 1978, p. 34; White, 1959). In any event, this underlines the necessity for providing an environment that considers the needs of the total triune brain. The question to be addressed in this section is what kind of an environment encourages individuals to seek optimal challenge and conquer these challenges? Deci (1975) suggested this would be

a work environment which is challenging, is interpersonally supportive, and allows for a considerable amount of self-determination (p. 227).

Attempts to increase intrinsic motivation have some very practical advantages for the educational organization. Not only does intrinsic motivation seem to be associated with better teaching, as described in chapter three, it also

"requires no monitoring for the administration of rewards and sanctions" (Leff, 1978, p. 28). Instead of these external incentives, the rewards are mediated internally by the person through the feelings of competence and self-determination (Deci, 1975) that come from competence at the task. Staw (1976) has suggested that tasks be designed to meet the quality and quantity demands of individuals motivated intrinsically. The teaching job is one that already contains optimal challenge, and has all the earmarks of the enriched jobs described by Herzberg (1966) and the four core dimensions of variety, identity, feedback and autonomy, that Hackman and Oldham (1974) consider typify challenging tasks. Because of these characteristics, it would seem that the teaching job would allow the teacher to "monitor his own task accomplishment and reward himself on a completely contingent basis" (Staw, 1976, p. 7).

On the surface this would seem to be the kind of administrative situation that almost looks after itself. In the present environment, with our current level of sophistication, and the realities of the triune brain (MacLean, 1973), however, this is not the case. In the first instance, much of the management folklore described in the first part of this chapter still exists in the minds of educational administrators. These notions of external direction and control (McGregor, 1960) need to be critically examined and

mental models that are a closer representation of reality are needed to replace them. Intrinsic motivation and system four management (Likert, 1977) are two such conceptions. As for the second consideration, intrinsic motivation seems to flourish best under conditions where the lower-order drives located in the second brain are not threatened. Administrators have a large part to play in the kinds of actions that they can take or avoid taking, that encourage the third brain to continue functioning.

Need Levels and the Task: Some Findings on Preferred Climates

Because of the importance of the lower-order needs, and the task itself, two overall conceptual frameworks will be reviewed before the detailed empirical research data is considered. The first is the hierarchy of motivational priorities developed by Suchman (1971). Like Maslow (1970) and Herzberg (1966), he postulated that lower-order needs must be filled before higher-order needs become operative. He describes the basic motivational system as physical survival. The type of climate that best meets these needs is one that is non-threatening, and contains trustworthy people. In view of the findings of Miskel (1974), this is an area that is particularly important for administrators, as they can have a large impact on this system. At the next level is the social-ego motivational system, where human acceptance and affiliation are dominant. It is at this stage that a

collegial atmosphere among faculty and administration is important. Teachers who have this need filled will be better able to include their students in the "experience of community with them" (Perry, 1970, p. 215). It is also at this level that recognition, power and status are activated. Whether they become destructive forces or are met in constructive ways, will be affected by the climate developed. Power struggles and "office politics" mitigate against an effective teaching-learning environment.

When the upper level, sensory-cognitive motivational system is reached, individuals are typified by exploration, discovery, and developing feelings of competence and self-determination as described by Deci (1975). This is equivalent to the intrinsically motivated state, and would likely be rated by most educators as an ideal learning environment. Suchman (1971) has described six actions that are typical of this motivated state. The first is sensing, where the environment is enjoyed and experienced. The second, building familiarity comes with activation of well practiced schemata and this, in turn, develops into accommodation when the new and the old are matched (Piaget, 1959). This paves the way for the fourth action, inventing new forms, and leads to analyzing, and then acting on the environment to create change and generate new experiences.

In summary, Suchman (1971) stresses three conditions that are conducive to the flourishing of intrinsically motivated

behaviors. These are a safe non-threatening, trusting environment; freedom from censure that encourages new ideas and risk-taking; and a responsive environment that offers understanding, listening and sharing.

Characteristics of Tasks That Are Intrinsically Motivating

The second overall conceptual scheme is one that stresses the characteristics of intrinsically motivated tasks, and was identified by Hackman and Oldham (1974). They predicted that when jobs were high on the core dimensions of autonomy, feedback, task identity and variety, those operating at the higher-order need level tend to be satisfied and produce better quality work. According to Pierce and Dunham (1978), their model is

the most widely used perceptual measure of job design, though its underlying dimensionality has been increasingly questioned (p. 123).

As to task variety, the teaching task has an abundance of complexity and challenge. Providing administrative actions do not reduce the challenge and variety through standardized methods and policy formulations, the teaching task is ideal for the intrinsically motivated person. Teacher satisfaction with their jobs has been reported over a good many years. Hoppock (1935) reported that more than ninety percent of a group of five hundred teachers liked their work, in contrast to unskilled labourers, who were unsatisfied. This does not

seem to have changed over the years (Brophy & Evertson, 1976; Cohen, 1973; Wickstrom, 1973). Task identity also is of importance to the teaching task. The integrity of the task must be retained if it is to remain an intrinsically rewarding activity. Any moves to fractionate and over-specialize the teaching task through modules that are standardized, and can be taught by anyone, may filter the challenge from the job and reduce the ability of the teacher to respond to the needs of students, as well as his own. Feedback is another necessary ingredient for jobs. While this can come from colleagues and administration, the best source is from the job itself. Again, the teaching task provides this, unless it is tampered with. Wood (1974) found that intrinsically motivated individuals did not respond to organizational performance appraisal, as they did "not give rise to the intrinsic rewards on which this subgroup was most dependent for work gratification" (1974). In the final analysis, it is important that the feedback be informational rather than controlling, if intrinsic motivation is to be enhanced (Deci, 1975, p. 142). Actions that assist the teacher to do self-assessment will do this. The last core characteristic, autonomy, is also a natural part of the teaching task. An autonomous job should allow the person to "own" the outcome of their work, rather than be dependent on the work of others, such as colleagues and administration.

The four characteristics described above were extended

by Staw (1976). He added task uncertainty, social interaction, task significance, responsibility for results, and the removal of barriers to task accomplishment. Task uncertainty is important in maintaining the optimal level of challenge needed for intrinsic motivation. The teaching task also builds in this feature, and it may be enhanced through encouragement on the part of administration to reach for the next challenge. This would also likely be facilitated by administrators who ensured the safety need did not become operative and thus interrupt goal seeking behavior. Social interaction is built into the teaching task and is an added satisfaction when allowed to flourish. As indicated in the third chapter, the social system provides necessary supplies for the living system. Both teachers and students (Perry, 1970) benefit from this interaction. The kind of transactions that occur among faculty and administration are important in facilitating intrinsic motivation. Those systems that are interaction-influence communication networks offer social and esteem support. This kind of network also ensures teachers will be able to meet the demands of their need for control identified by Janzen (1973). Teachers who are able to help students become more competent, have no problem with task significance. If teaching is defined as a "mark game", however, it will downgrade this characteristic, and reduce intrinsic motivation. The amount of freedom and support given to the teacher can have a decided effect on whether the teacher deals with real or "pseudo" issues. Removing barriers to task accomplishment

can increase intrinsic motivation when teachers are helped to do this themselves through encouragement and support, or when artificial roadblocks are not put in their way. Roadblocks and problems are then seen as optimal challenges (Deci, 1975) rather than barriers. The final characteristic, responsibility for results, is an essential one for the development of intrinsic motivation. As Staw (1976) indicated,

Only when the person can experience success or failure on a task is he likely to value the intrinsic rewards associated with accomplishment. Therefore, to increase intrinsic motivation, the person might be given a large amount of discretion over his task activities and held more accountable for his results (p. 8).

The results the teacher is held accountable for, and the way this accountability is expressed are also significant for this characteristic to be a positive influence on intrinsic motivation. When the results expected are meaningful student outcomes, and the accountability occurs within a "supportive relationship" (Likert & Likert, 1976, p. 108), intrinsic motivation will be enhanced. Some research results that bear on the importance of what has been described, will be reviewed next.

Some Supporting Empirical Data

1. Task Core Dimensions.

Farr (1976) found that undergraduate university students attributed their success in erecting a model to internal causes when on the high core dimensions (Hackman & Lawler,

1971) condition. The hypothesis that these core dimensions would lead to higher levels of intrinsic motivation when they were in the high core dimension condition did not receive as clear support as expected. These results, however, may have been influenced by the need level of the students, and the addition of other variables (contingent pay) being assessed at the same time. As he indicated, "the research reported here demonstrated the importance of task characteristics in affecting performer motivation and satisfaction" (Farr, 1976, p. 306).

2. Interesting Jobs and Participation.

Turnage and Muchinsky (1976) assessed the influence of the task, choice and payment on undergraduate male psychology students. They found that in a basically interesting job, where people can participate in decisions about the job, and payment is not contingent upon performance, intrinsic motivation seems to increase. While subjects were college students this study does lend support to the positive effects of an interesting job, such as teaching and to the benefits of participation.

3. Intrinsically Satisfying Jobs.

Kerr, Schriesheim, Murphy and Stogdill (1974), in reviewing the published literature on consideration and initiating structure of leaders, found that "intrinsic satisfaction may often be increased by providing high autonomy and broad job scope" (p. 67). They also hypothesized that when the task provided intrinsic satisfaction, dependency on the leader

for external satisfaction was reduced, as was the need for an externally imposed structure.

4. Satisfaction of Teachers.

In a sample of 373 elementary and secondary teachers and administrators (16%) Wickstrom (1973) found that where teachers were highly satisfied, achievement, pleasure in work, and good interpersonal relations were present. He suggested that "as the teacher's perception of competence improves, so will his job satisfaction" (p. 5). These findings would seem to support Rotter's (1966) notion of internal locus of control, and Campbell's (1973) research on the importance of pleasure centres in the brain. Feelings of pleasure arise from being competent and self-determined (Deci, 1975).

5. Performance and Intrinsic Satisfaction.

Inkson (1978) found that workers high in self-esteem achieved greater intrinsic satisfaction through good performance. This would seem to suggest the operation of a feedforward-feedback mechanism in operation. In other words, workers with high self-esteem likely perceived themselves as being able to achieve success, and would look for the internal reward of satisfaction at overcoming the challenge.

6. Preference for Enriched Jobs.

Giles (1977) found that female assembly-line workers who were high on measures of intrinsic motivation and internal

locus of control, volunteered to work on jobs that were high on the four core characteristics of autonomy, variety, task identity, and feedback. A questionnaire was used that contained modified statements from Hackman and Lawler (1971) and Rotter (1966), to assess higher-order needs, intrinsic motivation, and locus of control. He found that intrinsic motivation was more predictive of satisfaction with enriched jobs (volunteering) than locus of control, and hypothesized that this was likely because the focus was narrowed more closely to the job. A high locus of control may be experienced off the job, while on the job control may only be adequate or low. Cohen (1973) surveyed 322 two year college faculty in the United States. He found that the greatest source of satisfaction was the interaction with students. This would again seem to point toward the enriched nature of the teaching task, and the complexity involved with day to day interaction with students.

7. Age and Intrinsic Motivation.

Aldag and Brief (1975) found that both young and older employees valued intrinsic motivation. They differed on the intrinsic index of challenging work, which was preferred by younger employees, and performing the whole job, which was highly valued by older employees. In view of the increasing age range of college teachers, this finding has important implications for job design, and supports the contention made earlier that the challenge and completeness of the teaching job has motivating

potential. The movement of a preference for challenge to a focus on the whole job would also appear to be a logical progression in the teaching job. As the teacher develops his repertoire of behaviors to conquer challenge, his perspective would become wider, as broader and more general challenges surface. Earlier, Saleh (1964) found that intrinsic motivation dropped when employees approached retirement because opportunities for intrinsic stimulation were limited. Combining this finding with the Aldag and Brief (1975) study, one might speculate that if the college teacher was not prevented from moving into the challenges created by responsibility for the total job, intrinsic motivation would not decline.

8. Feedback and Intrinsic Motivation.

Feather (1968) found that intrinsic motivation increased when positive information was received on competence and self-determination, provided it was not given in the form of controlling verbal praise. This finding was supported by Deci et al. (1975) who found that both males and females who received positive feedback on their solutions to puzzles and anagrams increased their intrinsic motivation when the feedback could be given about competence and self-determination without a controlling element in the communication. Kelley (1967) and Jones and Nisbett (1971) found that heavy external pressure from supervision to perform an activity will result in the person perceiving

themselves as externally controlled. The importance, and the force of the task itself being able to have an impact on performance is implied in the research of Ryckman et al. (1971). They found that persons who were successful at anagram tasks were more confident and performed better on subsequent tasks than subjects who failed.

9. Cognitive Dissonance and Intrinsic Motivation.

Weick (1964) gave subjects a concept identification task with half of them getting the expected credit and respect, and the other subjects were told by an unfriendly experimenter that they would not get the expected rewards. Weick hypothesized that the second group reduced dissonance by solving more problems, requesting less help, persisting more, remembering more, and reporting that the task was interesting. Deci (1975) followed this finding by reviewing studies bearing on this problem. He concluded that people will reduce dissonance by feeling personally responsible for the activity when there is insufficient external justification for doing it. He considered that intrinsic motivation would increase under these circumstances for the purpose of feeling competent and self-determined.

10. The Effect of External Rewards on Intrinsic Motivation.

The most current and active controversy in research on intrinsic motivation centres around the empirical determination of how intrinsic and extrinsic motivation interact. The question is do they increase overall

motivation, or does the use of external forms of motivation, such as pay, detract from intrinsic motivation. Deci (1975a, 1975b, 1975c) considers that rewards that indicate the person is competent and self-determined will enhance intrinsic motivation. If rewards convey to people that they are incompetent, intrinsic motivation will decrease. He further argues that external rewards have both an informational and a controlling element. The informational aspect of external rewards provides data about competence, whereas the controlling aspect of external rewards changes perceived locus of control, thus reducing intrinsic motivation. Deci (1975) and others (Calder & Staw, 1975; Green & Lepper, 1974; Kruglanski, et al., 1971, 1975; Lepper & Greene, 1975; Pinder, 1976; Pritchard, Campbell & Campbell, 1977; Ronen, 1978) have completed and/or replicated empirical studies that lend support to the contention that contingent external rewards reduce intrinsic motivation.

Other researchers (Calder & Staw, 1975b; Dermer, 1975; Scott, 1975) have criticized the methods used in these studies and the lack of conformity to the behavioristic conditioning assumptions. While this latter criticism is more implied than explicitly stated, some data has been reported from other studies (Farr, 1976; Hamner & Foster, 1975) that does not support the Deci (1975) findings. In a more recent study Farr (1977) found mixed support for the effect of external rewards on intrinsic

motivation. He concluded that generalized statements are likely not warranted at this time and further called for identification of additional variables.

What appears to be evolving is a need for more complex models than those previously presented. Types of variables which need to be included in a complete model concerned with the effects of rewards upon motivation include individual difference variables, task variables, and situational variables. It is doubtful whether theoretical or applied progress will be made unless these factors are considered in the research in this area (p. 51).

On the other side of the argument are the number of studies that support Deci's (1975) cognitive evaluation approach, and the model that he has developed that does provide a conceptual framework that could include some of the additional variables indicated by Farr (1977).

11. Intrinsic Motivation and Ability as Job Performance Predictors.

Howard (1976) studied 353 clerical employees in a large bank. She found that ability added to intrinsic motivation, predicted job performance. Her questionnaire measured two aspects of intrinsic motivation. The first was the extent to which the job was enriched, based on the presence of autonomy and variety, and the second related to the individual's desire to achieve and grow. She concluded that an enriched job by itself would add to motivation. In the same way, employees selected because of a high growth need strength, would also be expected to evidence

motivation regardless of the enrichment level of the job (Howard, 1976, p. 100). This increased intrinsic motivation "raises average levels of performance, and adding measures of ability increases the predictability of job performance" (Howard, 1976, p. 99). An important feature to consider in Howard's (1976) research is the absence of data on high level jobs such as teaching that have a great deal of complexity already built in. She concluded that intrinsic motivation was a complex measure that likely could not be measured on a simple questionnaire and perhaps depth interviews or projective tests would be more appropriate. In this connection, it would seem that the protocols used by Wasicsko (1976) would be worthwhile possibilities to explore.

12. Participation and Influence as Moderators of Intrinsic Motivation.

The beneficial effect of a participatory climate on the encouragement of intrinsic motivation has been considered briefly in the foregoing. Additional support is available in the literature on the advantages to be derived (Bass & Leavitt, 1963; Rotundi, 1975; Runyon, 1973). A recent study by White (1978) investigated 73 variables for their moderating effect between participation and job attitudes. The findings indicated that the effects are situation-specific. In a later section the effects of influence and participation will be examined as they apply to college and university faculty and

administration.

Summarizing the findings reported above seems to point to an emerging picture of an environment that would encourage intrinsic motivation, as one that is similar to that described by Likert (1967) as system four. It is a picture of an organization that recognizes the inherent value in the complexity of the teaching task and takes steps to ensure it is not diminished. Coupled with this realization of the importance of the task is the need to ensure the teacher sees himself as competent, and feels secure. This would be enhanced if teachers were given positive feedback for competence and self-determination, were rewarded on a non-contingent basis, and communication on performance emphasized the informational rather than the controlling element. Systems of self-evaluation and internal reward could possibly supply these needs. In addition, the existence of a free and responsive environment that was cognizant of the differing needs of individual teachers along the dimension of intrinsic motivation would maintain motivation at a high level. This might be called diagnostic-reality based leadership.

In considering the above sample of empirical research findings, and the generalized summary, three cautions are advisable. The first has already been mentioned with the brief report of White's (1978) study. He reminded us that characteristics on the job and responses of employees are

situation-specific. Most of the studies have been completed on non-teaching personnel, and none of them reported so far have been on college instructors. These results should therefore be taken as indicators of where to concentrate in the search for empirical evidence on college faculty and their environments. At the same time, many of the characteristics mentioned seem to be person-specific, and as such may find their counterparts in the educational system. Specific educational studies will be considered in the next section. The second caution relates to the sometimes conflicting results, the early stage of the research, and the emotional climate that seems to defend

the widely accepted attitude of managers that they can actually motivate people in the intrinsic sense (Archer, 1976, p. 25).

The third and final caution is a concern about the current state of the knowledge available. Despite the large amount of data that has been accumulating, the areas of organizational behavior, teacher behavior and intrinsic motivation are still in their infancy. As Pinder (1977) so aptly phrased it,

what we know about human motivation in organizations is much less than what many single, simplistic theories claim, although we are gradually learning more about systematic conditions and individual differences (p. 393).

Even with the tentative nature of the research on motivation there is cause for optimism, as data continues to be sought on the motivating effect of the intrinsic energy source in man and ways it can best be released. As Deci (1975) would say, the motivational researcher is continually seeking new challenges in the form of research puzzles that he can conquer, and thus feel competent and self-determined. In the next section, a management system that would be appropriate to consider as a means to encourage intrinsic motivation in faculty will be reviewed, together with emerging evidence on its impact in the college environment.

Organizational Management "System Four"

Likert's (1977) research, and earlier (Likert, 1961) identification of a continuum of management styles, offers one of the most clearly articulated means of conceptualizing the variety of actions managers can choose. In addition, it also gathers together a large number of variables that operate in an organizational system, and expresses them on an instrument that can be used to identify independent, intervening, and dependent variables that interact together. As such, it provides for the complexity of the human being transacting within, and among other living systems in an organizational setting. It is a description of an interaction-influence system that seems to emphasize the kinds of actions

managers can take to encourage intrinsic motivation within a total systems approach. It further describes actions that can be taken to integrate personal and organizational goals and develop "win/win" (Wiley, 1973, p. 106) climates where everyone benefits. In the description that follows, system four administration will be summarized briefly, with particular reference to the parts of the model related to actions administrators can take to encourage intrinsic motivation in faculty. This will be followed by a selection of recent research that focuses on the results of system four administration in higher education. The remainder of the continuum of management styles (systems one, two and three) have been omitted. They represent the less than adequate approaches described earlier. Words such as mechanistic, closed, bureaucratic, formalized, routinized, authoritarian, over-specialized, and traditional might be used to describe a major proportion of those approaches, and would be characterized by the use of extrinsic methods of motivation. These are the approaches McGregor (1960) identified as based on "Theory X" assumptions about the worth of the individual human being.

Likert (1961, 1967, 1976, 1977) and his colleagues have been researching the correlation between management actions and results in organizations since 1947. Over 500 studies have been completed in more than 350 organizations, and these have included every conceivable kind of business, as well as schools and colleges. By August 1977, data had

been collected on 20,000 managers at all hierarchical levels and on more than 200,000 non-supervisory personnel (Likert, 1977b, p. 5). Their research is continuing.

The focus of their research has been on variables within three areas. On the basis of open system theory considered in chapter one, and the five subsystems that characterize organizations (Katz & Kahn, 1978), their model might be considered a modified open systems approach. Their major emphasis seems to be directed to variables within the organization, as they affect employees and towards outcomes produced by motivated personnel who perceive their personal goals and those of the organization as compatible. As such, they seem to assume that a fully functioning organization that contains integrated, productive, and motivated employees, will also be able to maintain an effective liaison with the external environmental system. In terms of the five open system subsystems (Katz & Kahn, 1978), "system four" may be said to emphasize how effective managerial and maintenance subsystems influence the productive subsystem. This helps to create an adaptive subsystem that makes certain the organization will be able to respond effectively to external changes in the environment. The schematic representation (figure 4-2) shows the interaction of causal variables that influence intervening variables such as motivation, and this in turn, produces end-result variables such as quality and satisfaction, and reduces negative symptoms such as decreased quality, turnover, and grievances.

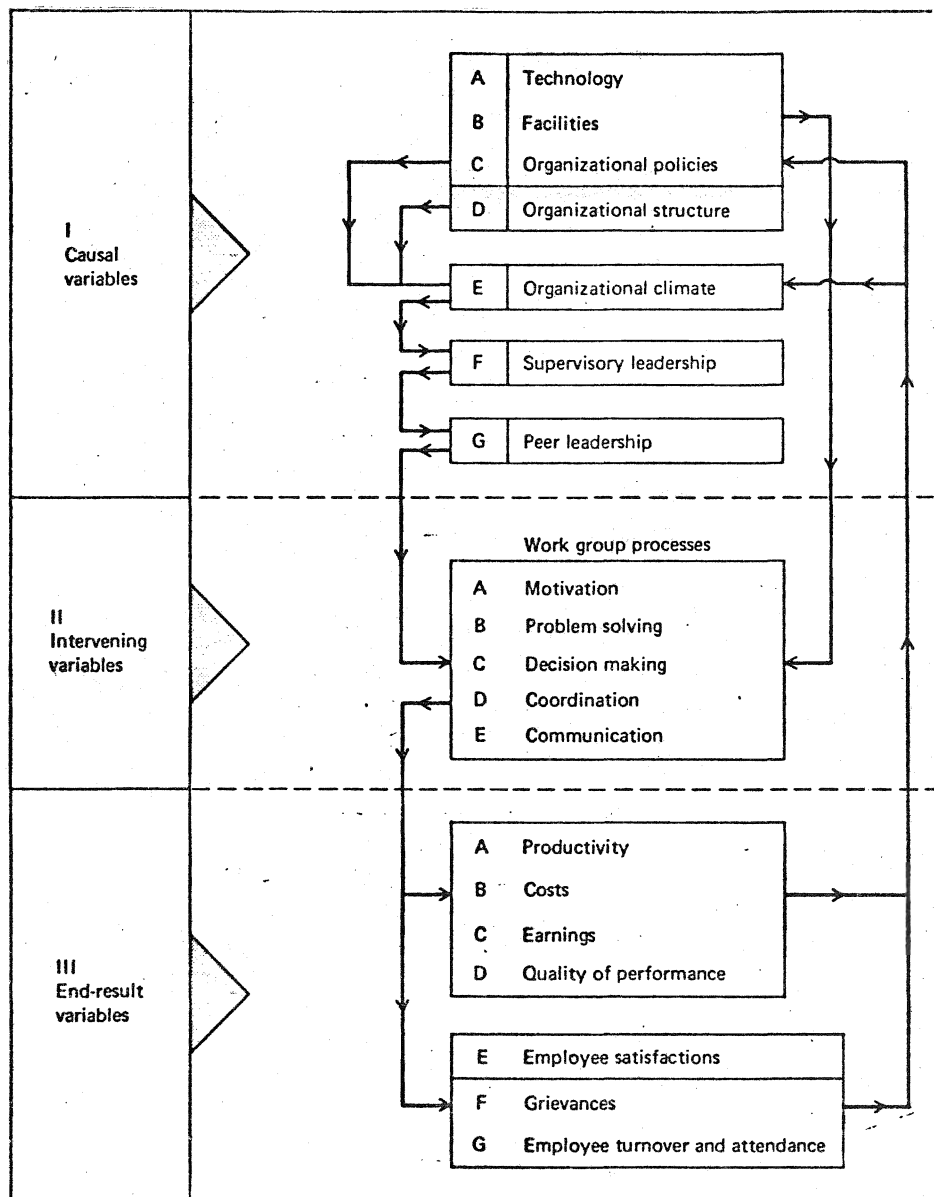


Figure 4-2. Likert's management system conceptual sequence (taken from Jongeward, Dorothy, Everybody Wins: Transactional Analysis Applied to Organizations. Mass.: Addison-Wesley, 1976, p. 287).

The above model applies to organizations in general, with particular emphasis on business and industry. In a community college, as described in this thesis, the end-result variables would be student internalization outcomes, outlined in chapter three. The intervening variable of most importance would be intrinsic motivation in faculty, based on the assumption made earlier, that intrinsically motivated faculty would be most likely to bring about internalization outcomes in students. Three causal variables are of particular importance in the encouragement of intrinsic motivation, as outlined in Likert's (1977) system four management model. The first is administrative leadership, and to a lesser extent, organizational climate and peer leadership. Since these two features describe the kind of climate that was called for earlier (an appropriate combination of concern with ensuring security, balanced with optimal challenge), they will be considered next.

According to Likert (1967), the relationship between the supervisor and subordinate, that is most effective, is ego building and supportive. This is not the kind of support that increases dependence, but instead, is the type of behavior that considers the importance of how things are perceived, the value of the task, and the need for internal direction and self-determination. In Likert's (1976) own words,

Most persons wish to obtain a sense of accomplishment and self-actualization from useful work or activity. One who is not expected to perform at a high level of competence will assume that others view him or her as weak, incompetent, inferior, and in need of being taken care of. This view is ego-deflating and violates in a fundamental manner the principle of supportive relationships. Some leaders provide strong motivation for excellence by expecting the impossible from their members and having complete confidence that they will achieve it. This orientation by leaders stimulates not only outstanding performance but the growth and development of the members (pp. 121-122).

This principle of supportive relationships would appear to be comparable to "invitations" (Purkey, 1978) described earlier, and would match with the climate described by Deci (1975, p. 227) as challenging, interpersonally supportive, and allowing self-determination, along with the information needed on competence. It also stresses the importance of the task, and in the case of teachers, in particular, this is a major consideration.

Another important characteristic of system four (Likert, 1967) is the emphasis on team building. He stresses the maintenance of healthy and productive interpersonal relationships among faculty, and administration. Such an environment would help to mediate the security and informational needs of faculty, as destructive "office politics" would not be consistent with the open communication provided with team building activities.

Work facilitation is yet another activity that Likert

(1967) perceives as part of system four management. By this he means actions that help to provide facilities, equipment, and competent problem solving skill when and where needed. The leader who perceives his role in this way will likely emphasize the informational, rather than the controlling elements and would thus meet another important requirement in the encouragement of intrinsic motivation (Deci, 1975).

An organizational climate that is characterized by an interaction influence system for decision-making, provides for upward influence from individuals lower in the hierarchy. It also establishes horizontal relationships that allow for decision-making or influence on a peer basis. According to Likert (1976) this kind of atmosphere not only makes problem solving more accurate and effective, it also increases the managers' influence downward, and clarifies perceptions and improves communication effectiveness. As for intrinsic motivation, it provides the necessary climate for optimal challenge, and informational feedback. Because such a climate builds trust, this also has the effect of meeting security needs. In this kind of a climate, faculty members are more likely to share their concerns about student development and cooperate together in helping students to develop internalization outcomes.

A related feature of the organizational climate described above is the peer leadership of other faculty members. Where it is characterized by supportiveness, high

performance goals, team building, and work facilitation, it can also exert a significant impact on the encouragement of intrinsic motivation. The other side of peer leadership shows itself when the administrative model is not consistent with system four. Under these conditions, the goals of faculty and administration will likely differ, and the strength of faculty associations may work towards the balancing of the influence and power centres in the institution. As Konrad (1974) has pointed out, the growth of collective bargaining may be interpreted as a way to cope with the increasing pressure to standardize procedures, that reduce the complexity of the teaching job. In colleges where the administrative system is at the opposite end, or is more autocratic than system four, the perception of the style of management being used is often different with each hierarchical level. Pesuth (1976) surveyed a junior college in the United States using Likert's (1967) Profile of Organizational Climate, Form T. He found that the faculty perceived the organization as functioning at a System Two level, and their expectations were System Four. Administration, on the other hand, perceived the organization was functioning at System Three. Their expectations were also System Four. Based on additional responses to the profile, he concluded that the trust level between faculty and administration was low, resulting in dysfunctional attitudes.

Research on System Four Management and College Administration

While research on organizations using Likert's (1967) Profile of Organizational Characteristics Questionnaire has mostly been completed on business and industry in the past, some empirical research has been starting to emerge from the study of institutions of higher learning. As Likert indicated recently,

a number of studies, particularly doctoral dissertations completed in recent years, are beginning to provide evidence that System 4 appears to be as effective in institutions of higher education as it is in business organizations. For widely different kinds of desirable outcomes, System 4 appears to be superior to other systems of educational administration (1977b, p. 1).

The studies summarized below relate to findings on decision-making, participation, and both conditions under which power and influence is not sought by faculty, and those under which it is collectively sought.

1. Decision-Making and Faculty Involvement.

Smith (1971) used the Likert (1967) Profile of a College or University Questionnaire to survey the faculty, heads of departments, and higher level administrators in twelve public community colleges (836 faculty, 108 department heads, and 41 upper level administrators). He found that faculty members consider they have more influence on activities in departments where the administrator is closer to System Four leadership style.

They felt best when their managers' style was closest to what they wanted, and the higher the faculty influence, the higher the faculty rated their administrator.

Driscoll (1978) studied faculty members in a small New York State liberal arts college. Among other things, he found that decision-making was not an issue when members of the organization agreed upon goals.

2. Administrative Style and Concerns About Influence.

Gardner (1971) found that the faculty of twenty departments in a large liberal arts college were not as concerned about direct involvement in administrative activities when their chairman's management style was participative (System Four). This finding was born out by Laughlin (1973). He studied the perceptions of faculty members in thirteen junior community colleges in Colorado, and found that in departments where the head of the department was closer to System Four leadership style, faculty had the most favourable attitudes toward the college. They also felt that the president, deans, and department heads should have a great deal of influence in what went on in the college. Cline (1974) gathered evidence of the reaction of 220 teachers in fourteen community colleges in Colorado, to autocratic (System One) management. He found that teachers who saw the organizations management system as close to System One were more likely to favour collective negotiations. He concluded that faculty saw this action as enabling them to gain more of a role in

decision-making. Fox (1973) surveyed 431 faculty of a large medical school using Likert's (1967) Profile of Organizational Characteristics (Form S). He found that faculty wanted more involvement in decision-making, goal setting, and perceived this type of involvement as critical to their motivation.

3. Outcomes Correlated with System Four Management.

Bowers (1976) studied the management systems in a sample of the smaller liberal arts colleges in Ohio, using Likert's (1967) instrumentation. He found that colleges rated as more innovative were perceived by both faculty and administration as being closer to System Four management. Innovative behavior was measured on an instrument created by Brick and McGrath (1969) that was later modified by Opacinch (1973).

Administrators at the more innovative colleges perceived faculty and students as having more influence and gave them more influence. The faculty also perceived themselves as having more influence, considered their ideas were sought and used by administration, and gave their students more influence. Faculty and students at the more innovative colleges were generally more critical of administration, and wanted them to have less influence. The reverse was true for non-innovative colleges. Faculty and students at these colleges wanted more power with administration.

These findings would seem to support the earlier arguments made for an "interaction-influence" (Likert, 1967) type of college organization and management that allows its members to be expressive, open, and influential. These qualities seem to overlap with the characteristics of the intrinsically motivated person, and also seem to be the kind of behaviors needed by the open system, described earlier, to combat entropy.

4. Trust and Participation in Decision-Making.

An important study was completed by Driscoll (1978) who found trust and participation in decision-making predicted satisfaction among college faculty. An attitude questionnaire was mailed to faculty in a small liberal arts college in upstate New York. A small sample of thirty-nine percent (109) responded and their responses to items on the general attitude questionnaire about participation were used for the study. The range of choices on the questionnaire went from no input in decision-making to group participation at the other extreme. The issues examined were new faculty appointments, promotions, salary increases, appointment of a new department head, and allocation of the college budget. Perceived trust of the department head, head of the school, and president, was measured on a scale from "never" at one extreme to "always" at the other.

The results indicated that increased participation

raised both the satisfaction level with the organization and with participation itself (Driscoll, 1978, p. 49). Even more significant was the congruence between desired and perceived participation in decision-making, as a predictor of satisfaction. As Driscoll (1978) observed,

This study supports one of Ritchie's (1974) conditions on the effectiveness of participation, namely that people must desire participation for it to have major effects (p. 53).

From the earlier research reviewed, it would seem that the faculty of community colleges have a strong desire for participation. According to a further finding of Driscoll's (1978) organizational trust was even more important than participation in decision-making. His conclusion was:

Thus, regardless of a person's level of participation in decision-making and regardless of the fit between desired and perceived levels of participation, people with more trust in the organization's decision-makers are more satisfied with their level of participation (p. 54).

This seems to support the contention made earlier that faculty require a secure base and interpersonal support (Deci, 1975, p. 227) for innovation and intrinsic motivation to flourish. When the faculty member perceives leadership in the organization as trustworthy and willing to allow participation, one might speculate that faculty are then able to turn their attention to the

challenge of the teaching task, rather than lower-order deficiency needs.

In general, these findings, together with those described earlier, seem to indicate that faculty and administration need to work in the type of overall climate Likert (1967) describes as System Four. Under these conditions the safety needs of both are alleviated, the climate supportive, and the intercommunication open and effective. This results in mutual goal seeking and the type of atmosphere that ensures agreement on goals. An important result for this climate would seem to be the greater likelihood of intrinsic motivation flourishing.

An Integrative Summary

The above studies seem to indicate the importance of faculty influence and involvement. When faculty consider they have more influence in the department, the goals are agreed upon, and their ideas are considered, they have generally favourable attitudes toward the college and return the influence to administration by responding to their ideas. The findings also point toward the favourable attitudes of faculty whose administrators were closer to System Four management. Less concern about involvement in administrative decisions were evidenced by faculty whose department heads were more participative, whereas those faculty whose managers were closer to system one management

attempted to gain more decision-making power through collective negotiations. These findings seem to point to the importance of faculty being able to perceive themselves as having an internal locus of control and to the need to ensure the complexity of the teaching task is not eroded. Both of these are consistent with the hypothesis that college faculty are intrinsically motivated. Thus, one might interpret decision-making, and influence as one of the ways a person can achieve feelings of self-determination and competence. In addition, such action can ensure the enriched nature of the job is not lost, or in any event is safeguarded. These results also point to the value of administrative actions such as "System Four", in setting a climate for intrinsic motivation to flourish.

Another finding that supports this notion is the correlation between system four management and innovation. One of the outcomes of intrinsic motivation, described earlier, is creativity. It would thus seem logical to conclude that system four management has a positive influence on intrinsic motivation, and this, in turn, is shown in job performance. We could therefore expect to find more innovative faculty, who were intrinsically motivated, where system four management existed. In any event, this would be a hypothesis that would be worthy of further testing. Another important correlation appeared between faculty expressiveness, openness, and system four management. In addition to the value of this kind of behavior in combating

entropy, it is also the kind of action that typifies the intrinsically motivated behavior of seeking and overcoming challenges (Deci, 1975). It is also the type of behavior that will be expressed in negative ways for the organization (collective bargaining) unless it is allowed to flourish under a type of management such as system four. Thus, the research seems to point to the earlier assertion in chapters two and three, that the energy of intrinsic motivation is present in faculty, and will be expressed in one way or another. It follows that if administrators wish to make the maximum use of this energy, a nurturing climate such as system four management would be a positive move towards the attainment of organizational goals and survival. Howard (1976) indicated:

Although extrinsic rewards are certainly available in organizations (people are paid to work, their supervisors reward them verbally, they get promoted, etc.), on a day-to-day basis under conditions of no incentive pay, the enhancement of intrinsic motivation may be the most reliable motivator at an organization's disposal (p. 51).

Driscoll's (1978) research demonstrated that when the needs of intrinsically motivated faculty are met through a climate of trust, confidence, and opportunities for participation in decision-making, the organization can move on to the fulfillment of higher-order needs and priorities, such as the development of internalization outcomes in students.

Organizational Models of Motivation: A Summary

The empirical data summarized in the preceding sections is representative of the evolving integrated multidimensional approach to organizational functioning that conceives individuals and organizations as open, living systems. This approach recognizes the many variables operating in the system, and the resulting difficulty in identifying what these variables are, and how they interact. One means at the disposal of the behavioral scientist is the analogy provided by models that help to gather together variables in such a way that relationships can be determined. This section will attempt to review the motivational models that have evolved, as a background to the consideration of a model of transactions among students, teachers, and administration in the community colleges. As such, it is important to remember the qualifications that Coleman (1979) stated recently, when he said,

Unlike formal theories, which purportedly account for all relevant data, models are not intended to be entirely accurate explanations of reality. Rather, they are conceptual tools that can help investigators organize and interpret masses of data that might otherwise prove meaningless and unwieldy (p. 29).

The background model that has served as a basis for much of what has followed, is the concept of a two-level hierarchy of motivation developed by Maslow (1965). He applied this to organizational functioning by specifying

how managers might develop a climate where employees would be encouraged to move from the deficiency motivation at the lower end of the hierarchy to the growth motivated behavior at the upper end of the hierarchy. This model postulates that if managers were to create a climate that allowed for the fulfillment of lower-order needs, the higher-order growth needs would become active. The type of climate that was considered ideal for this to happen was one that included opportunities for autonomy, variety, and responsibility. One of the major difficulties experienced with this model was the disappointing finding that not everyone is motivated to move up the hierarchy to growth motivation, as a result of the heavy emphasis on second brain socialization described in chapter three. While little has been done on empirical testing of Maslow's (1970) model, results of studies completed (Alderfer, 1969; Goodman, 1968; Quinn, Stains, & McCullough, 1974) indicate that higher-level workers such as faculty members are concerned more with growth needs such as achievement, esteem, and self-actualization.

Atkinson (1964) studied the higher-level needs of achievement, power, and affiliation. His resulting model postulated that striving for a goal (motivation) depends on the strength of the need, the expectancy of attaining the goal, and the value of the goal to the person. The implication for management is that if needs are identified and the job demands matched, motivation will result. As the preceding research on college faculty indicated, this feature of

motivation seems to have been unconsciously recognized by faculty, who attempted to make a match between desired organizational goals and needs.

In attempting to develop high achievement motivation, McClelland (1965) defined twelve propositions that were then organized into a stimulus-organism-response model. Perhaps the major importance of McClelland's (1965) model, for this thesis, is that a climate similar to that described by Likert (1967) as System Four, was able to have an influence on the encouragement of achievement motivation. This is particularly relevant when one considers that this has been empirically tested and achievement motivation is considered one of the specific motives that develops from intrinsic motivation (Deci, 1975).

Herzberg's (1966) motivation-hygiene theory has already been mentioned as an alternate view of man. It is best known for calling attention to the significant difference between external means that managers have used to attempt to increase motivation of the "dissatisfiers", or lower-order needs, and the potent forces that can be released when growth needs are given a chance to flourish with jobs that have been enriched. The model postulates that individuals find satisfaction in achievement, recognition, responsibility, advancement, growth, and the intrinsic factors of the work itself. This model has been criticized for its oversimplification of the relationship between motivation and satisfaction by Steers and Porter (1975, p. 111) although they acknowledged that

many intrinsic aspects of jobs are identified as "satisfiers". They also summarized the research of over thirty-five studies into variables representing satisfaction. A major finding was that intrinsic job factors were "more important to both satisfying dissatisfying job events" (Steers & Porter, 1975, p. 112). Again, this seems to point to the importance of enriched tasks such as teaching, in the encouragement of intrinsic motivation.

The model of motivation based on equity theory (Adams, 1965) is one that is concerned with external methods of motivation, and the energization of second brain (MacLean, 1973) responses. It is based on the perception an individual has of his own input and outcomes compared to a reference person. Where inequity exists, it would seem that intrinsic motivation would be reduced, and drives in the second brain energized, causing a less effective and more dysfunctional set of behaviors that serve to reverse the inequity. It would seem reasonable to assume that the move towards collective bargaining, described earlier in the summary of empirical research, may have been motivated to reduce inequity.

A major breakthrough came from the identification of the relationships among dynamic variables that affect individual behavior. A considerable number of researchers have become involved in this identification of variables that have in turn, been grouped according to the motivational level, abilities, personality, and role perception (Porter et al., 1975; Porter & Lawler, 1968; Vroom, 1960, 1964). The model

has been developed from an abundance of theoretical notions on the behavior of the person, and is generally called the expectancy/valence theory model (Steers & Porter, 1975, p. 180). This model can also be classified as a cognitive-systems approach discussed in earlier chapters, and it comes closer to recognizing the dynamic influence of the person.

According to the expectancy/valence model, behavior results from the belief that effort will result in expected performance, the desired rewards will be received, and the outcome will be assigned a positive value. This can also work in the opposite direction, with strong negative value being assigned the outcome so that it is avoided. This model has several implications for the college environment. If one considers the research reviewed earlier, faculty are strongly desirous of a climate of freedom and autonomy, and will direct effort towards influence attempts (collective bargaining) to secure this desired goal. When this is achieved, faculty are free to move to higher-order needs. Innovation and creativity emerge as desired outcomes. The overall effect is to value change, innovation, and intrinsic motivation. This in turn, leads to variety and challenge in the job, and these are not only important ingredients for the encouragement of intrinsic motivation, but are confirmed energizers of morale and satisfaction (Steers & Porter, 1975, p. 271). The implication of this reasoning is that intrinsic motivation can be nurtured through the establishment of a "Systems Four type" administration that allows the natural

energy of intrinsic motivation to emerge and develop outcomes of valued innovation, problem solving, and change. The other side of the picture is all too easy to paint. In other words, if a "System One" management style was used throughout the colleges, this would frustrate the natural inclination for movement toward the fulfillment and valuation of higher order needs and intrinsic motivation. Instead, drives such as security and negative emotion, would, in turn, result in lowered quality and apathy towards the teaching task. One might say that external control would be in evidence through tight administrative structuring, and one would likely be able to point to standardization of courses and simplicity of function. But, as Steers and Porter (1975) so eloquently stated,

When, however, we move to organizations which have the modifications of human beings as their product, as in educational institutions,...we do not want to rely solely upon an organizational control to guarantee minimum effort of employees. We want employees with high motivation and high identification with their jobs. Jobs cannot profitably be fractionated very far and standardized and coordinated to a rigorous time schedule in a research laboratory, in a medical clinic, in an educational institution, or in a hospital (p. 272).

As the preceding models of motivation demonstrate, data is accumulating on a wide variety of variables that have an impact on the behavior of individuals in organizations. Like the evolving nature of the human being, our mental models attempt to catch up with the complexity that is man.

No models exist that can capture and describe the total essence of the person functioning in a complex social organization. This remains a goal, however, and every attempt to identify and describe the interrelationships of the multiplicity of variables, is a step in the direction of a model that will ultimately describe these involved transactions.

In the next chapter, the systems model of educational transactions presented in the first part of this thesis, will be considered in more detail. Implications for such a conception of the community college will be reviewed, together with the research, ideas, goals, problems, and priorities established in the preceding four chapters.

Chapter Summary

The importance of nurturing intrinsic motivation and open system thinking was stated at the outset of this chapter. The point was raised that intrinsically motivated faculty, a challenging teaching task, and supportive administrative behavior, will likely lead toward the goal of excellence as a person (Sanford, 1969, p. 17), that stresses the holistic (Smuts, 1926) nature of the human being. The Canadian society, and education were pictured as in need of open system thinking, yet were typified as evidencing a wide array of symptomatic problems that seems to indicate a regression to more primitive forms of behavior.

It was also argued that the colleges have an important

role to fill in producing internalization outcomes in students, and thus helping to reverse the downward spiral society seems to be following. These concerns are widespread and have been referred to in a global way recently (Laszlo, 1977; Mesarovic & Pestel, 1974). The strong conviction that seems to be emerging from the world-wide meetings and reports referred to above is that society needs individuals and groups who are prepared to take heterostatic action to reverse these negative trends. Mesarovic and Pestel (1974) stated, at the outset of their report:

the way to make doomsday prophecies self-fulfilling is to ignore the obvious signs of perils that lie ahead - which indeed are already felt - and rely solely on 'faith'. Our scientifically conducted analysis of the long-term world development based on all available data points out quite clearly that such a passive course leads to disaster (p. vii).

The point was raised that the colleges are in danger of repeating the same mistakes as administrators in business have done in the past. The stage of consolidation and the corresponding search for stable and efficient operation could lead to a strangle-hold on the very system that has the major responsibility for heterostatic student outcomes. Organization theory and management practice were reviewed for the purpose of considering the painful progression of administrative practice to the present more enlightened methods that have resulted from the study of both success and failure in the business world. Unleashing the intrinsic

motivation of organizational members was suggested as one of the means available to educational administrators to ensure organizational effectiveness, and more particularly, to initiate activity directed at bringing about internalization outcomes in students. In this connection, both climates and tasks that encourage intrinsic motivation were reviewed.

Tasks that were high on variety, identity, feedback, autonomy, uncertainty, social interaction, significance, and responsibility, were postulated to correlate with intrinsic motivation. Supporting evidence for this contention was then presented. Likert's (1977) management "system four" was suggested as a climate that was suitable for the nurturing of intrinsic motivation, and empirical research evidence relating system four management and college administration was considered. The characteristics of supportive relationships, team building, work facilitation, an interaction-influence system, and peer leadership were selected as particularly relevant to the development of a climate that encourages intrinsic motivation.

The last section of the chapter was devoted to an exploration of various organizational models of motivation. Maslow's (1965) two-level hierarchy, Atkinson's (1964) higher level need model, McClelland's (1965) stimulus-organism-response model of twelve propositions, Herzberg's (1966) motivation-hygiene theory, Adams' (1965) equity theory model, and Steers and Porter's (1975) expectancy/valence model were reviewed as background to the systems model of educational

transactions to be detailed in the next chapter.

CHAPTER V

RECOMMENDATIONS FOR FUTURE RESEARCH AND APPLICATION

What can be done to establish goals that are appropriate to the present global situation of mankind? Every individual citizen of planet Earth should face this question, for each person can play a meaningful and important role in promoting the healthy transformation of values and goals (Laszlo, et al., 1977, p. xiv).

Preceding chapters have placed the person in a systems context. The assumption has even been made that the person is at the centre because of the unique capacity to reason, plan, problem solve, and affect his own system and that of other systems in the universe. This places a heavy responsibility on the individual, but if mankind is to continue to grow, develop, and survive, it would seem that it depends on each person. The living, open system from the lowliest, yet important single cell, to the mighty universe, is linked together in a colossal ecosystem. Actions in one part have a dynamic effect on other parts. Because of man's capacity to alter this delicate balance and effect the natural system in both positive and destructive ways, the kind of person needed by society, and emerging from the educational system, is crucial.

In earlier chapters the qualities needed in individuals were described. Persons with a high degree of intrinsic

motivation, internal control, competence, interdependence, multiplistic thinking, balanced triune brain functioning, and high self-esteem were indicated as important. Such individuals also require knowledge, so they can make growth choices and seek and conquer challenges. It was also assumed that the college system has the task of helping and inviting individuals to develop these qualities. In this way, persons who seek heterostatic challenges, rather than just the passive homeostatic balance, will be ready for the challenges here now, and the increasing challenge in the future. Further, colleges that keep alive the intrinsic energy within faculty are hypothesized to have a greater chance of inviting student outcomes needed by society.

The next section will present the total model of educational transactions considered throughout earlier chapters. The dynamic relationship among the input of teaching task and leadership style; the way they affect the teacher characteristics of perception, motivation, and competence; their impact on personal and procedural teacher behavior; and the way this culminates in three possible student outcomes, will be examined. Once each major part of the model has been reviewed, the total dynamic relationship will be considered as a total system, and speculative hypotheses raised on the interrelationships. Such a system is not a simple linear one, but has feedforward as well as feedback mechanisms throughout. Many of these relationships

will be described in linear form, however, to highlight certain transactions. The description of the model will be tentative, speculative, and will result in more questions than answers. It is hoped that it may be a stimulus to the raising of further questions and the establishing of predictions that can be tested.

The Systems Model of Education Transactions - Reviewed

An overview of a systems model of educational transactions was presented in chapter one that described the basic operation of the model in producing student outcomes. In subsequent chapters various parts of the model were considered, in relation to the empirical research available, and the theoretical models and ideas that offered relevant data on each part. In this chapter the complete, detailed model will be reviewed and research and other data covered in previous chapters will be summarized through the model.

Because of the tentative nature of some of the data, the limited research on college teaching, and the absence of any previous models of educational transactions in the colleges, there will be gaps in the framework, and much of what is covered will be tentative and speculative. On the other hand, this should not be confused with the terms inaccurate and impractical. Both the total conception in action and the detailed parts described, will offer suggestions for further research, application, planning, and hypotheses for testing.

The Detailed Model in Action

The model shown in figure 5-1 can first be visualized as one that interconnects with the solid arrows. This allows the system to input positive forces of "system four" leadership style and a teaching task that has an abundance of challenge because of the inclusion of the characteristics diagrammed. These impact on teacher characteristics of perception of internal control and high self-esteem which then flow to intrinsic motivation. Deci's (1975) conceptualization (see figure 3-8) operates at this point, with an awareness of potential satisfaction initiating goal directed behavior that is reflected in competent action and ability to influence decisions and outcomes with one's own behavior. This is not as simple a linear relationship as the description may suggest, but instead, is characterized by both feedforward and feedback transactions. More will be said about this relationship when the detailed transactions are covered in each of the four major areas.

Competence in teachers leads to both personal and procedural behaviors that are effective in bringing about the internalization outcomes listed for students. These qualities will be reviewed in detail and in general may be considered the type of outcomes desired by society to reverse entropy. When student internalization outcomes are attained, this is communicated back through the teacher's personal behavior with students to perceived high self-esteem. A further set

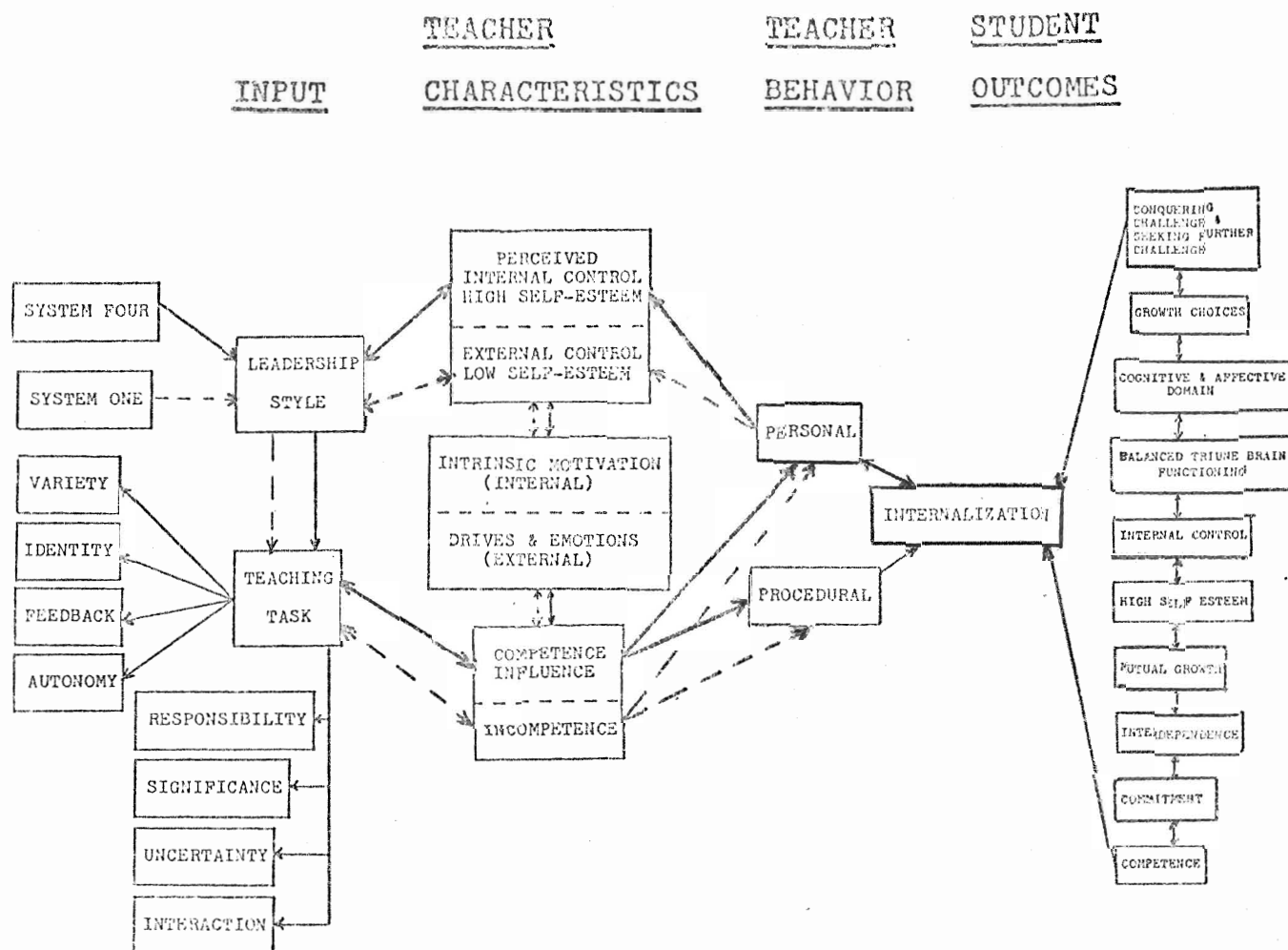


Figure 5-1. The systems model of educational transactions in action.

of intrinsically motivated behaviors are then likely to occur because the teacher will perceive himself as competent and self-directed and capable of influencing behavior. At this stage, even the lower drives and emotions will be activated for pleasure will likely be felt and the opportunity for filling lower-order needs results in satisfaction.

These feelings of pleasure and increasing competence will then likely initiate activity aimed at improving the task, and investing more fully in each of the areas identified with the task. At the interface between perceived internal control, high self-esteem and "system four" leadership style, relationships will likely be characterized by an interaction-influence system that is mutually beneficial.

A negative cycle of destructive relationships is also possible, and it is represented in the broken lines in figure 5-1. This set of transactions may be started by "system one" leadership style. Such autocratic administrative behavior typically appeals to teachers who are possessed by an external locus of causality and who usually have a low self-esteem. Given this combination of teacher characteristics, one may postulate that lower-order drives will be activated and the teacher will respond mainly to external forms of control and influence. Since the form of their security comes from others, one might also predict that the emotions of fear and insecurity may typify their reactions. One of the results of this type of perception and motivation is incompetence. The teacher is overwhelmed by the eight task characteristics

which typically are needed for intrinsic motivation. This incompetence is reflected in personal and procedural behavior directed towards students, who may perceive these behaviors as irresponsible, passive, and not worthy of respect. Because of their heavy reliance on external authority, these teachers would likely comply with standardized, "canned" approaches that become increasingly divorced from the needs of students, and the open system. Instead of internalization outcomes in students, this approach is more likely to encourage compliance or "game playing" on the part of the students.

On the return trip through the negative cycle, feedback in the form of manipulative, passive, or angry students passes through the teacher's personal behaviors to their perceived low self-esteem. Emotions of fear and anxiety combine with lower-order needs of safety and security to encourage the teacher to become even more externally controlled. The reaction is further incompetence and more reliance on external administrative direction and control. This effectively eliminates the task characteristics that are shown in figure 5-1, as those outside the classroom are now making decisions on content and approach. Since teacher-student interaction is a dynamic, changing process which requires personal monitoring to correctly identify the changing student needs, the teaching approaches determined, without benefit of this interchange, become increasingly out of touch with reality. The needs of society for heterostatic behavior is now replaced

with compliance, and homeostatic forces directed at maintaining the status quo, and the existing state of affairs. Given the state of the world's problems as outlined earlier, this could have drastic impact on the total living system.

As promised earlier, the above description of positive and negative cycles in the model are incomplete and oversimplified. When human beings, with their own unique life experiences, thinking styles, needs, and emotions are considered in the model, even more variables are introduced. This is to be expected, however, and the following description will attempt to fill in some of the gaps in the model that will help to move towards a closer match with real human beings. Each part of the model's four areas of concern will be described and explained, starting with student outcomes and working back to the twin input of teaching task and administrative style. Since the negative and positive cycles represent two extremes of a normal probability curve, future research might usefully consider how a representative college population might be scattered along this continuum.

Expected Student Outcomes

Desirable student outcomes are goals for which the colleges have been established. They are also the necessary inputs required by society to continue to exist and to reverse entropy. While colleges, departments, and individuals working in the colleges have a variety of goals and objectives, it is

important that they culminate in necessary student outcomes if the colleges are to be considered ultimately successful. Earlier chapters described the intrinsically motivated, internally controlled, interdependent, and competent person as a desirable, and even necessary student outcome. Detailed research evidence was covered in chapter three to support this contention, and specific student outcomes were listed toward the end of the chapter.

The preceding chapters described research which considered the importance of developing the third brain (MacLean, 1973); the development of multiplistic thinking (Perry, 1970); the movement towards mutual growth (Land, 1973); the importance of both homeostatic (Cannon, 1939) and heterostatic (Menninger, 1963) behavior; the need for people who take the growth choice (Maslow, 1968); the importance of self-esteem (Coopersmith, 1967); the value of successfully working through the psychosocial stages of life (Erikson, 1968); the desirability of working towards autonomy (Loevinger, 1966); post-conventional moral development (Kohlberg, 1968); the need to build a set of effective conditioned responses (Gagne, 1977); the importance of developing competence (White, 1959); the need to develop internalized control (Rotter, 1966); the advantages to the person who develops feelings of competence and self-determination in the process of searching for and conquering challenge (Deci, 1975); the need to move towards interdependence (Argyris, 1957).

Attempts have also been made to categorize student

outcomes. The importance of these hierarchies, taxonomies, and levels lies in the way they help to organize thinking about the desirable direction of development and the means they offer teachers to diagnose the level the student has reached. Teachers are thus able to select and structure invitations and an environment that would qualify as one that offers optimal incongruity (Hunt, 1965), optimal complexity (Walker, 1973), and optimal arousal potential (Berlyne, 1971).

For example, Bloom (1956) has developed a taxonomy that describes progressive development in the cognitive domain. A corresponding hierarchy has been developed by Krathwohl, Bloom, and Masia (1964) for the affective domain, and yet another one by Harrow (1972) for psychomotor development. While these hierarchies are linear, and progress from the simple to the complex they have offered teachers a way of organizing thinking about the kind of outcomes students may usefully achieve.

Most attention has been devoted to the cognitive area. Piaget (1959) has identified four stages of intellectual development that concentrate mainly on the early years. The ability for abstract thought evidenced in Piaget's last stage of formal operations, however, may be viewed as establishing a base for the type of thinking college students usually begin with. This is fixed thinking that Perry (1970) identified as dualism. It is a stage characterized by evaluation in terms of right or wrong and absolutes. The preference is for learning the correct answers, and ignoring shades of meaning. David Hunt's (1971) "conceptual level one" is similar. Like Perry, his

stages move from this basic level to the fourth stage of complexity, where the individual can operate interdependently, is adaptable, can maintain a balanced perspective, and can build new constructs and abstractions. Perry's last stage is one of commitment, where the person has accepted the relativity of life, and his or her identity and responsibility.

All of the conceptions mentioned above seem to converge on a similar notion of man developing toward complexity. The three stage process of Harrison's (1972), described in chapter two, outlines three systems of influence and matching outcomes in college students. It seems to have captured the intent of the conceptions mentioned above, and has established a corresponding climate that is desirable for each stage of student development. His focus was stated in the following quotation:

We need to move students from reliance on authoritative sources of information toward developing and evaluating their own sources. We need to move from a focus on the content of learning to an equal and sometimes greater concern with the process of learning (Harrison, 1972, p. 304).

At the compliance level the student relies on the teacher as the external agent of control. Typically, the third brain is not engaged at this level, and this is similar to Perry's (1970) dualism. At the next stage of identification, the student selects role models to emulate, and identify with. The highest level is called internalization by Harrison (1972). At this stage the

person is characterized as having confidence in his ability to meet his needs; he has developed a strong identity; standards and values are well developed; he is willing to endure deprivation to serve his own standards and values; he has the ability to give and receive satisfaction; and an ability to problem solve effectively, as well as being the possessor of an abundance of knowledge and skill. His locus of causality (Rotter, 1966) will be internal and he will be intrinsically motivated. The internalization outcomes described above and in chapter three have been selected as ones that are desirable student outcomes, and they have been contrasted with the lower level outcomes of identification and compliance.

The assumption has been made that the natural movement of desirable growth is from compliance, through identification to internalization. At each of these three stages, various outcomes emerge. Some are dropped as others take their place, and in outcomes such as the triune brain (MacLean, 1973), the person learns how to effectively balance the three functions. The hypothesized development is set out in table 5-1. A flow chart (figure 5-2) establishes the hierarchical relationship of each of the outcomes and suggests how growth may proceed from compliance to internalization, through effective teacher behavior.

Three possible groupings of student outcomes have been set out in figure 5-2. The three major areas are based on those established by Harrison (1972), and the detailed

Table 5-1
Possible Student Outcomes Compared to Harrison's (1972) Three
Part Hierarchy

		Compliance	Identification	Internalization
Argyris				
(1957)	Dependence	yes		
	Counter-dependence	yes		
	Independence		yes	
	Interdependence			yes
Erikson				
(1968)	Role confusion		yes	
	Identity			yes
Maslow				
(1971)	Fear & Defense	yes	yes	
	Growth		yes	yes
Deci				
(1975)	Seeking challenge		yes	yes
	Conquering challenge			yes
Rotter				
(1966)	External control	yes	yes	
	Internal control		yes	yes
Coopersmith				
(1967)	Low self-esteem	yes		
	High self-esteem			yes
White				
(1959)	Incompetent	yes		
	Competent			yes
MacLean				
(1973)	Reptilian brain	yes	yes	yes
	Paleomammalian	yes	yes	yes
	Neomammalian			yes
Perry				
(1970)	Dualistic thought	yes		
	Relativistic		yes	
	Commitment			yes
Land				
(1973)	Accretive		yes	yes
	Replicative		yes	yes
	Mutual			yes
Bloom				
(1956)	Cognitive			
	Domain		yes	yes
Krathwohl				
(1964)	Affective			yes

(Based on a decision-table approach described by Crane, 1977-78)

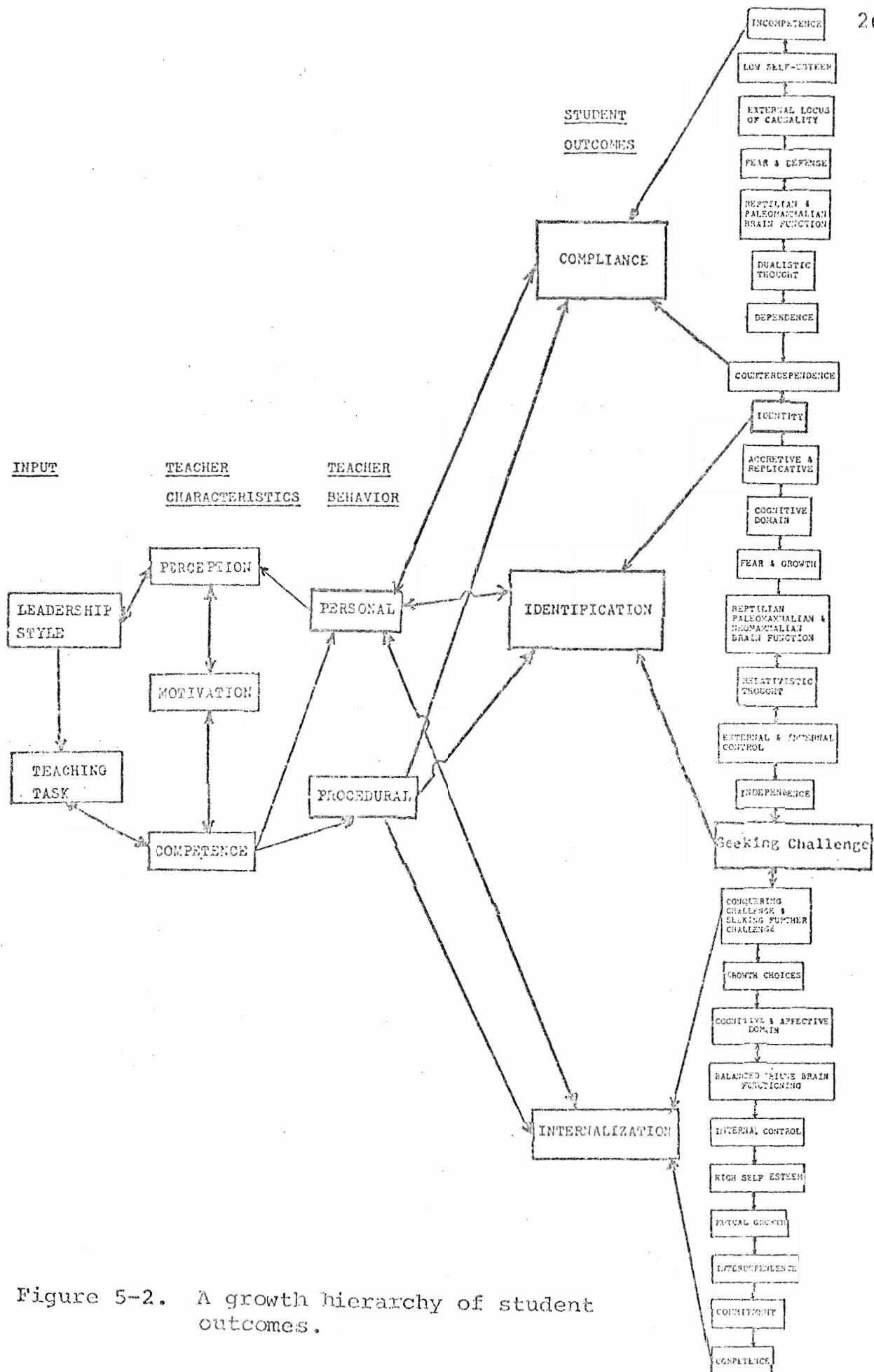


Figure 5-2. A growth hierarchy of student outcomes.

outcomes have been grouped according to the research and conceptualizations listed in table 5-1. Since most of those listed are established as hierarchies or levels, they have been shown on the flow chart as progressing from the lowest levels at the top of the chart to the highest and more complex levels at the bottom of the chart. Each major group is linked to the next level with an outcome that is hypothesized to initiate higher-level behaviors, and summarize the lower-level ones for that grouping. Thus, the person who is struggling for identity through counterdependence may be seen to have reached another growth level that allows the person to move into the next group of identification outcomes. In the same way, the person who has reached independence will tend to seek challenge that moves into the internalization outcome of conquering the challenge.

The model makes the assumption that students enter the colleges at heterogeneous competence levels and therefore may or may not start at the lowest level of compliance outcomes identified by Harrison (1972). Sanford (1969) described the student at this lowest level, when he described students who entered college with "relatively primitive tastes, shallow interests, values unmodified since childhood, and rigid patterns of thinking" (p. 19). If they enter at this level of sophistication, they will likely lack several competencies, such as the ability to express themselves fluently and effectively in the written word, or ability to deal with abstract thought. Such a lack of competence would

result in feelings of low self-esteem. This reduces the person to perceiving that he has an external locus of causality, will be powerless, and overwhelmed by the environment. The only power available is through more powerful "others". This may establish a situation of fear and defense against growth, because such development would necessitate a move from the safe and secure protection of the more powerful authority. The person at this level is operating from reptilian and paleomammalian (MacLean, 1973) brain responses, and what Perry (1970) has identified as dualistic thinking. Such behavior results in dependence upon the teacher for establishing goals, structure, and sanctions concerning behavior. The student seeks direction from the teacher, and "devotes most of his curiosity and energy to manipulation of other people" (Hutcheon, 1975, p. 12).

On the surface, this appears to be an ideal learning environment. Control is in the hands of the teacher and things proceed smoothly as acceptance of external direction is at a maximum. At this level, answers are sought for the correct action to take and the ones to avoid. This symptom that can so easily be mistaken for a stable efficient organization, however, is one that is covering up real growth. It is also an intimidating one for both the teacher and the student, because it gives everyone the false assurance of safety and security. No one questions the teacher's information, nor is encouraged to reflect and

enquire. This often lulls the teacher into a false sense of omnipotence, and the student into acceptance of artificial models of the world.

When the students at the compliance level begin to evolve to the next level of identification, this growth may often be evidenced in the form of counterdependence. This struggle towards freedom may take the form of challenging authority, avoiding work, and fighting with friends and classmates. While this step may be skipped, it is often a prelude to the establishment of an identity, where the person resumes growth. This may take the form of accretive growth, through the addition of knowledge, and understanding, in the cognitive domain. Replicative growth will occur as the student models behavior after teachers or other students.

It is possibly through the understanding acquired and the feeling of safety the identification process offers, that growth choices are made possible. As understanding grows, fear choices lessen, and the person reaches out into the ambiguous environment. This is a middle stage, however, and fluctuation from the safe, and secure, to the unknown may be evident. This is also a time that is likely characterized by first and second brain responses, with the third brain starting to develop relativistic thought. This is also a time when the person is beginning to move from an external locus of causality to an internal one. As more confidence is gained, the person becomes more independent and starts to seek challenge outside the safety of those they have identified with in the

past. Their orientation might be said to have started to internalize, and they are now developing an identity of their own. This process of seeking challenge may be thought of as another linking action to the higher outcomes of internalization.

It is this seeking behavior that not only indicates the person is no longer dependent on the support of others, but it further illustrates that their own identity has developed. As these forays continue into the unknown, the person discovers that challenges can be met and conquered. This sets up a pleasurable sequence of intrinsically motivated behaviors that result in a high proportion of growth choices, leading to further cognitive and affective development. The person not only acquires knowledge and understands, he can now apply the knowledge and comprehension and move to an even further level of analysis and synthesis. In the affective domain, he is more able to receive data, respond to it in selective ways, and begins to develop his own value system.

These behaviors lead to the acquisition of mental models in the central nervous system that are more accurate representations of the real world and a balance of the three brain areas becomes a reality. This control, that becomes possible, may then be reflected in feelings of internal locus of causality and high self-esteem. This allows for multiplistic thinking and the person has concerns beyond himself to the stage of mutual growth, interdependence with others, and a commitment to multiplistic thought, and man's higher levels of thinking

and functioning. One might say the person has reached the stage of competence and self-determination. It is now possible for the person to freely give and receive, to reason, reflect on actions proposed and planned, and problem-solve. Such a person is no longer chained to the more primitive deficiency qualities that characterize compliance and identification outcomes.

The outcomes described above comprise a hypothetical, rather than an actual progression. Every individual will have different experiences with each of the detailed outcomes, or the actions that can have an effect on them. This factor alone would tend to suggest that individuals may have another mix of each of the three main groupings. This would also seem to suggest the importance of diagnosis by teachers. The detailed linking factors such as identity and seeking challenge might also be different according to the individual's experience, making the order subject to change. Another factor that should be considered is the selection of detailed outcomes themselves. To a large extent, they have been included because they have been backed by research covered earlier; they offer convenient operationalized instrumentation; most of them show a progression in development, from simple to complex, and from reliance on outside support to freedom of action and thought. They offer a tentative list that has been conveniently grouped together to represent assertions made in earlier chapters. Other outcomes could also be considered, but this particular set offers a starting

place for testing the particular hypotheses considered in the systems model of educational transactions at the community college.

The next section will outline teacher behavior that will have or could have an effect on the above student outcomes. The evidence covered in previous chapters has supported the position that certain teacher behaviors are more likely to bring about internalization outcomes than others. It is these behaviors that will be the focus, rather than those which are hypothesized to influence the student to remain at the compliance level or their starting level.

Teacher Behavior

The major assumption of this section of the model is that students are responsible for their own outcomes but the environment, in the form of faculty, and fellow students, can have a large influence on the direction and depth of the outcomes. This is best expressed in terms of Purkey's (1978) concept of invitational teaching described earlier. Teachers offer suitable invitations and students choose to accept or reject them.

The interaction effect of this notion has been explored by Novak (1978), who indicated a systems implication of various teacher and student perceptions of invitations. He pointed out the dynamic nature of the interface between the teacher and the student. While "teachers who hold positive

perceptions of students are most likely to extend positive invitations to students" (Novak, 1978, p. 4), this does not mean that the invitations will be accepted. Indeed, "some students, because of their perceptions and behaviors, seem to invite teacher invitations or disinventions" (Novak, 1978, p. 4). This dynamic and complex relationship has been the subject of an abundance of research, opinion, argument, philosophical discussion and speculation over the years. As Purkey (1978) has indicated,

After generations of study, researchers still lack a systematic way of describing the events of communication between teachers and students that result in learning. Despite literally thousands of research studies, articles, books, and reports about the nature of 'good teaching', there is still very little agreement (p. 1).

While this question will not be settled for some time, the stance taken by this thesis is that certain teacher behaviors are more likely to bring about student outcomes of internalization than others. Research relating to the behaviors that will be covered was described in chapter three. The teacher behaviors considered in this section are offered as a collection of possible areas to consider as they impact on student outcomes listed in figure 5-1.

An example of goals directed at internalization outcomes in students is provided by Furth and Wachs (1975). These goals seem to be typical of the kind of teacher attitudes and actions that are basic to the approach taken by teachers who were able to provide a learning climate where students

were "increasingly less dependent upon others" (Hutcheon, 1975, p. 18).

The children understood that what counted was their own activity and that high-level functioning was its own reward. We wanted the children to be pleased with their own accomplishments, not to do things in order to please the teacher. We wanted them to rely on their own internally controlled evidence, not vacuously look at the teacher's face for approval or disapproval. We wanted, above all, to leave the children free to move into those situations they found rewarding. In sum, our aim was to respect the children's individual capacities and differences and leave them in control of the situation (Furth & Wachs, 1975, p. 23).

They were commenting on behavior in an elementary school, but with a few minor changes, it could easily serve as a goal for community college internalization outcomes.

As figure 5-3 indicates, two categories of teacher behaviors have been identified as bringing about these outcomes. Personal behaviors are those the individual teacher performs directly with the student, in his transactions. The second group of behaviors relates more to the formally designed learning structure the teacher creates. Table 5-2 and table 5-3 summarize the personal and procedural behaviors, respectively. As far as possible, these qualities have been taken from the research covered earlier.

Table 5-2
Possible Personal Teacher Behaviors Compared to Harrison's
(1972) Three Stage Hierarchy

	Compliance	Identifi- cation	Internal- ization
Acceptance of responsibility			yes
Understanding and tolerant	yes	yes	yes
Providing a challenging environment			yes
High expectations			yes
Interpersonal support		yes	yes
Supportive behavior	yes	yes	yes
Unconditional respect	yes	yes	yes
Confirming students as able and responsible		yes	yes
Sharing worthwhile knowledge	yes	yes	yes
Efficient information processing	yes	yes	yes
Spotting problems in advance	yes	yes	yes
Preventing problems from starting	yes	yes	yes
Adequate diagnosis of classroom experience	yes	yes	yes
Identification of student learning difficulties	yes	yes	yes
Offering optimal invitations	yes	yes	yes
Encouraging a sense of community	yes	yes	yes
Fair but firm	yes		
Clear and consistent	yes	yes	
Reliable external rewards	yes		
Frequent assistance	yes		
Persuasive and charismatic	yes	yes	
Empathetic and accepting	yes	yes	yes
Inspiring and enthusiastic		yes	yes
Contact with students		yes	yes
Competent and trustworthy	yes	yes	yes
Constructive internal dialogue	yes	yes	yes

Table 5-3

Possible Procedural Teacher Behaviors Compared to Harrison's
(1972) Hierarchy

	Compliance	Identifi- cation	Internali- zation
Invitations to be responsible, capable, and feel valuable		yes	yes
Listening with care	yes	yes	yes
Student needs and goals involved in the design		yes	yes
Maximum freedom in structure			yes
Freedom from threat	yes	yes	yes
Trusting, secure climate	yes	yes	yes
Optimal challenge		yes	yes
Diagnosing needs and difficulties	yes	yes	yes
Feedback on consequences		yes	yes
Minimize controls and status differences			yes
Design tasks high in autonomy, task identity, feedback, and variety			yes
Cooperative learning tasks		yes	yes
Interaction encouraged		yes	yes
Extrinsic rewards minimized			yes
Informational rather than controlling aspect stressed		yes	yes
Discovery learning, and other thinking climates used			yes
Optimal incongruity, complexity, and arousal potential of tasks	yes	yes	yes

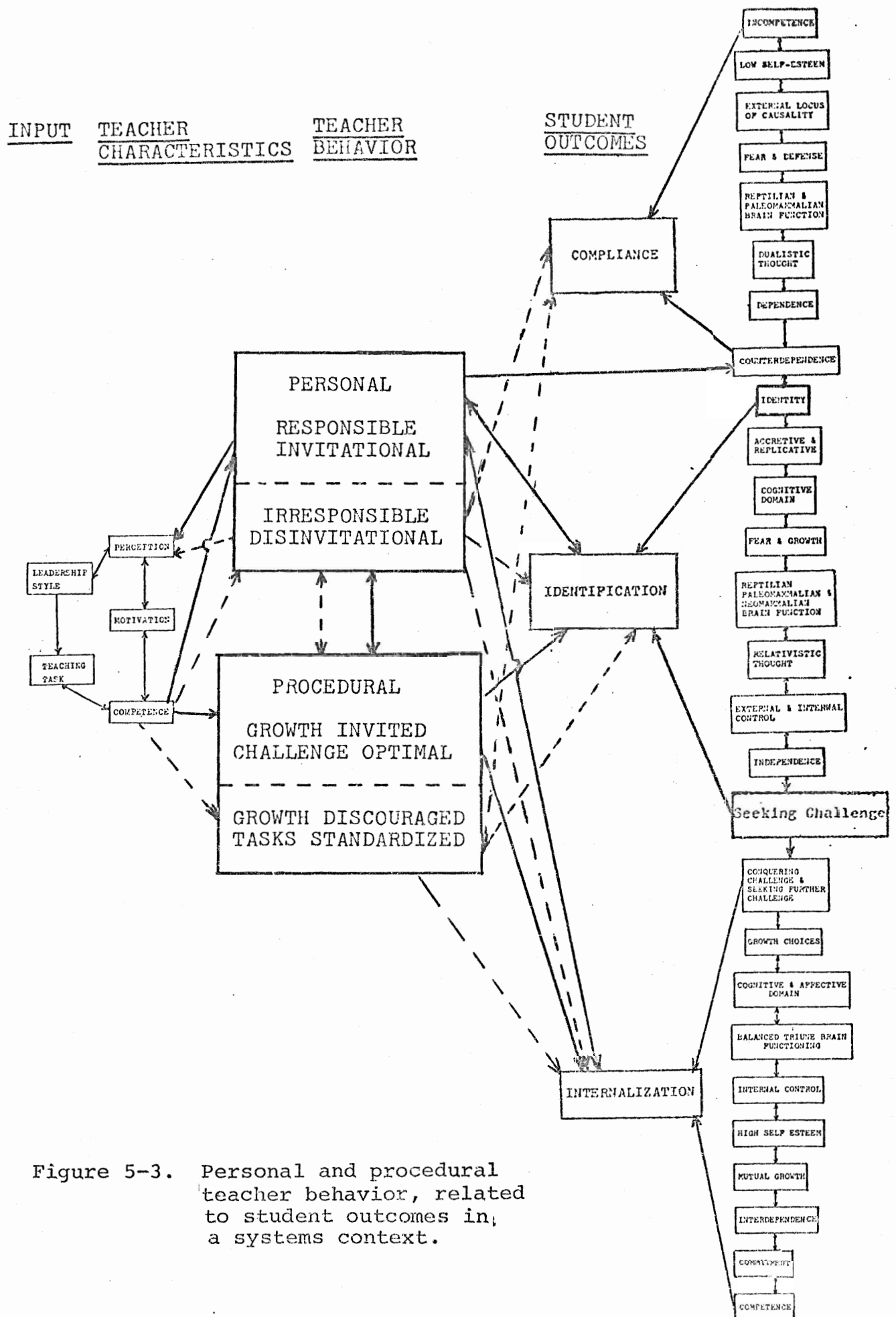


Figure 5-3. Personal and procedural teacher behavior, related to student outcomes in a systems context.

Personal Behaviors

The teacher's personal style is an important influence. Based on the research covered earlier and some of the additional data provided elsewhere, a collection of personal teacher behaviors seems to be emerging. High on the list is the acceptance of responsibility (Brophy & Evertson, 1976; Hill, 1978; Janzen, et al., 1973; Miskel, 1974; Ryans, 1960). Understanding and tolerant are also chosen as behaviors that characterize effective teachers (Burkard, 1962; Furth & Wachs, 1975; Hill, 1978; Ryans, 1960; Saleh & Janz, 1977). The provision of a challenging environment, coupled with high expectations recurs throughout the literature (Brophy & Evertson, 1976; Deci, 1975; Likert & Likert, 1976; Saleh & Janz, 1977), and is often cited along with interpersonal support (Deci, 1975), supportive behavior (Likert & Likert, 1976), unconditional respect (Purkey, 1978), and confirming students as able and responsible (Novak, 1978).

Along with the process behaviors mentioned above is the need for balance with the world of knowledge (Novak, 1978) and efficient information processing (Wolk & DuCette, 1974). This not only shows up in the teacher's sharing of worthwhile knowledge (Novak, 1978), but in the ability to spot problems in advance (Kounin, 1970), and prevent them from starting (Brophy & Evertson, 1976). These behaviors imply an ability to adequately diagnose the classroom experience, student learning difficulties and needs, and thus be able to offer

optimal invitations (Purkey, 1978) to students. Perhaps these are the kinds of behaviors that encourage the sense of community (Perry, 1970) that is seen as desirable.

Along with the behaviors cited by several researchers and educators mentioned above are a set of related actions that teachers may use to positively influence student outcomes. The following examples are provided: listening to students; providing non-evaluative feedback; helping students understand their experience, encouraging students to accept mistakes as part of the human condition, and learn from them; providing information on competence; inviting discipline and self-control; evidence a positive view of life, and a sense of humour; being empathetic and accepting of students; being aware of one's own "internal dialogue" (Purkey, 1978, p. 56); engaging in self-development; being trustworthy and real; and finally, demonstrate by example, the fallibility as well as the competence of the human being.

Procedural Behaviors

Much has been written on the actions of teachers in classrooms and the methods and procedures used. Even more has been discussed in the open public forum, where instant experts are created overnight. The journalist, board member, politician, parent, minister, lawyer, and the everyday citizen from various backgrounds, are quick to suggest methods and approaches teachers should use. Unfortu-

nately, many of the methods used by teachers have not been supported by educational research (Mouly, 1978, p. 308), and as a result, lack an empirical base. As chapter one and two pointed out, more cooperation is needed between the practicing educator and the researcher. Indeed, the best of both worlds would seem to be a teacher who is concerned about doing his or her own research on the effectiveness of various methods.

Teacher procedures and methods will not be given the coverage the voluminous data on this subject warrants. Such an exercise is beyond the parameters of this thesis. Instead, the objective will be to include a representative set of actions that are hypothesized to bring about internalization outcomes described earlier and move towards what Joyce and Weil described as

The ultimate educational activity, in fact, may turn out to be to help a student learn to build his own ways of teaching himself (p. 316).

Perhaps the conception of educational transactions will also offer a framework for the discovery of methods that are compatible with the total living system approach to education and to society, described in this thesis.

High on the list of desirable activities are the invitations offered to students to be responsible, capable, and to feel valuable (Purkey, 1978). Listening with care and reaching each student (Purkey, 1978) through learning designs

that involve student needs and goals is another priority. Bruner (1972) stressed the importance of creating a learning structure that allows for maximum freedom and Suchman (1971) reminds the designer of learning approaches to establish procedures that also offer the learner a secure base. In this way, optimal challenges (Deci, 1975) may be presented to the learner as invitations that are attainable, yet challenging enough to stretch the learner's capacity. Effective learning designs rely on the diagnostic skill and the ability of teachers to identify student difficulties, mentioned in the section on personal behavior.

Designs that enable the students to evaluate their own actions through feedback on the consequences of their behavior are supported by organizational research (Likert, 1961), and data based on work with younger students (Felker, 1974). Linked with this non-evaluative feedback are learning designs that minimize controls and differences in authority when students are ready (Deci, 1975). Based on an adequate diagnosis of student learning needs, the teacher is also able to organize course offerings to meet current needs, establish situations that are self-motivating, and design tasks that are high on autonomy, task identity, feedback, and variety (Hackman & Oldham, 1974).

Learning tasks can also be established for their ability to elicit cooperation and classrooms arranged for minimum disruption. Both time management and cooperation can be facilitated by rules, deadlines, and ways of structuring the

interaction process, that involve students in their creation (Harrison, 1972).

The more freedom of choice and action the student has, the more opportunity there is to involve his own goals and values, and to own his learning experience (Harrison, 1972, p. 318).

According to Deci's (1975) research described in chapter three, tasks will retain their intrinsically motivating qualities if extrinsic rewards are kept to a minimum. This data is still being debated, and in view of the heavy reliance on external grades in the current college system, it may not be possible to do anything more than de-emphasize their importance through objective means such as criterion-referenced approaches that stress the informational aspect rather than the controlling one (Deci, 1975).

Multiplistic thinking (Perry, 1970) and a spirit of inquiry may be fostered through structuring to include different orientations to a subject, providing opportunities for divergent thinking through discussion and assignments, and structuring the course to encourage inquiry and application. As Bruner (1966) described the process,

To instruct someone in a discipline is not a matter of getting him to commit results to mind. Rather, it is to teach him to participate in the process that makes possible the establishment of knowledge. We teach a subject not to produce little living libraries on the subject, but rather to get a student to think...for himself ...to take part in the process of knowledge-getting. Knowing is a process, not a product (p. 72).

Many additional qualities could be included in both the personal and procedural areas. What has been covered, however, has explored some of the actions that may be taken, and the attitudes that may be held, that have an effect on the development of internalization outcomes in students. Since much of what has been covered is either speculative or still undergoing research verification, this is a rich source of future experimentation for teachers and researchers alike. Perhaps this is one of the areas that accounts for the abundance of challenge needed in a task for intrinsic motivation to survive. Looking at the situation from this perspective, the tentative nature of the data, and the dearth of concrete evidence would appear to be a strong advantage, and attempts to gain closure and convergence too quickly may not only do a disservice to the validity and reliability of the research data, but to the challenge inherent in the teaching task itself.

A number of potential hypotheses have been established in figure 5-3. Some major personal and procedural qualities have been identified in the teacher behavior area of the figure. Those above the dotted line are hypothesized to have a beneficial effect on student outcomes, and those below the line are considered detrimental to the establishment of internalization outcomes, or may tend to restrict growth in this direction. As the arrows between the personal and procedural behaviors indicate, the positive qualities work together, as do the negative. In other words, the chances

are more likely that a person who was both responsible and invitational would have developed classroom procedures that are optimally challenging and characterized by their potential to bring about growth.

The dotted arrows to compliance outcomes represent the continuance and reinforcement of these outcomes. The student interacting with such a teacher would be hypothesized to either remain at the same level of entry, would be reinforced on their compliance behaviors, or learn how to manipulate the system. The dotted arrows from the less desirable personal and procedural qualities to both identification and internalization outcomes are postulated to prevent or hinder these from occurring.

On the more positive side, the solid arrows represent growth from compliance behaviors through to internalization outcomes. Typically, the first sign of a move towards the next level of identification is evidenced in counterdependent behaviors. The solid arrow is shown coming from responsible personal behaviors to this outcome because of the importance of the teacher being able to recognize and invite the student to move to the next level. It is at this point that the procedural behaviors combine with the personal ones to assist the process of identification outcomes developing, and thus enabling the internalization behaviors to emerge. This description is much oversimplified, and one can expect that actions listed on tables 5-2 and 5-3 will be operating in conjunction with the main ones listed on the figure.

The next section will describe teacher characteristics that have an effect on the teacher behaviors discussed.

Teacher Characteristics

What teacher characteristics seem to be associated with teacher behaviors that help or hinder the development of internalization outcomes in students? It is this question that the following section will seek to answer. Based on the research described in chapter three and the systems model of the person considered, three interrelated areas will be seen as affecting teacher behaviors. The person has been viewed as a system composed of physical, social-environmental, motivational-emotional, and cognitive subsystems, with the latter as the master, guiding control. The total interaction of these subsystems is reflected outwardly in the person's competence. The person's motivational energy is triggered by their perception of themselves and the situation, and it is these two characteristics that underlie the person's competence or incompetence. The way these three affect each other is not a simple linear relationship, but is, instead, a dynamic feedforward-feedback situation that is also related to other parts of the total educational transactions model. The first one to be reviewed is perception.

Perception

Bem (1967) proposed that people observe themselves and infer their own internal states in much the same way that they do those of others. It is therefore possible for teachers to infer they have an internal or external locus of causality. Since one of the personal teacher behaviors is the type of internal dialogue a teacher engages in with himself, it would seem that self-perception is a significant factor. It is thus possible for the teacher to perceive himself or the environment as causal agents in events (Heider, 1958). If the person perceives his ability gives him personal power, that outweighs barriers in the environment, he will likely be able to cause an event to occur. He thus attributes personal causation to himself, and perceives his actions make a difference to a situation. He is characterized by internal control (Rotter, 1966).

Intrinsically motivated behaviors are ones that demonstrate internal causality. The person feels competent and self-determined. This is in direct contrast to those who perceive themselves as having an external locus of causality. Such a person would perceive the environment as the causal agent, and would consider he was doing the task or activity to gain external rewards or avoid the pain of punishment. In this way, perception has a large part to play in generating motivation and emotion, and in determining competence.

Self-esteem (Coopersmith, 1967) is another important determiner of events. It has been included in the model of educational transactions because of its importance as an origin of behavior. As Combs, Avila and Purkey (1978) indicated,

It would be hard to overestimate the importance of a positive view of self for effective behavior, for the self is the centre of a person's existence, one's frame of reference for dealing with life. With a positive view of self one can dare, be open to experience, confront the world openly and with certainty (p. 85).

Self-esteem and internal control are partners in the employ of the effective, intrinsically motivated person. Teachers who possess high self-esteem and an internal locus of control will likely perceive themselves as competent and self-directed, with growth potential, positive emotion, and able to solve problems encountered in the environment. As Combs, Richards, and Richards (1976) have said:

Each one's behavior is determined not by the objective environment, but by a personal, individual way of perceiving which is unique to that person and which the psychologist calls the perceptual field...People do not behave according to the facts as others see them. They behave according to the facts as they see them (pp. 19-20).

Perception and motivation are intimately intertwined with each other. Motivation will be considered next.

Motivation

Because of the importance of motivation, a total chapter was devoted to the exploration of intrinsic motivation, its historical evolvement as a concept, its operation, and its crucial function as a dynamic energy source. An attempt was made to clarify the misunderstanding prevalent about intrinsic and extrinsic motivation. It will not be the purpose of this section to repeat the arguments made for the existence of intrinsic motivation as the natural motivated state that can be interrupted by emotion and lower-order drives. Nor will the evidence on the influence of the social-environmental system at bringing about an emphasis on drives and other paleomammalian brain responses (MacLean, 1973) be considered again. Instead, this data will be used to speculate on the importance of intrinsic motivation in the context of the systems model shown in figure 5-4.

Behavior that is intrinsically motivated seems to need no apparent external rewards. The activity of seeking and conquering optimal challenges is rewarding itself. As a result of this activity, the person has feelings of competence and self-determination. These two features of intrinsic motivation justify its placement in the centre of the model of educational transactions (figure 5-4). The energy source provided by intrinsic motivation is the instigator of perceptions of internal causality and control, high self-esteem, and competence. This is made possible by the person

perceiving a gap between the present state and the challenge that makes it possible to acquire feelings of competence and self-determination. The teacher seeks an optimum challenge, such as the teaching task; conquers it by solving student learning needs, and designing learning strategies that meet these needs. This sequence feeds to the person's perception of internal control and reinforces their high self-esteem. Because the paleomammalian brain is working for the person, the competence available in the neomammalian brain can now be fully released and the person evidences more competence in both personal and procedural actions directed at student outcomes.

The above description implies the needs of the college educational system are ideally met by teachers who are intrinsically motivated. While the research reviewed earlier (chapter three) established a tentative correlation between the intrinsically motivated person and effective personal and procedural behaviors (see tables 5-2 and 5-3), this is not the complete picture. Teachers high on intrinsic motivation measures were found to be responsible, above average intellectually, organized, have positive views of others, hold high expectations, problem-solve effectively, anticipate difficulties, and have high autonomy. Additional ones are set out in table 5-2.

They were also found to have an expressed need for security, a need in the lower end of Maslow's (1970)

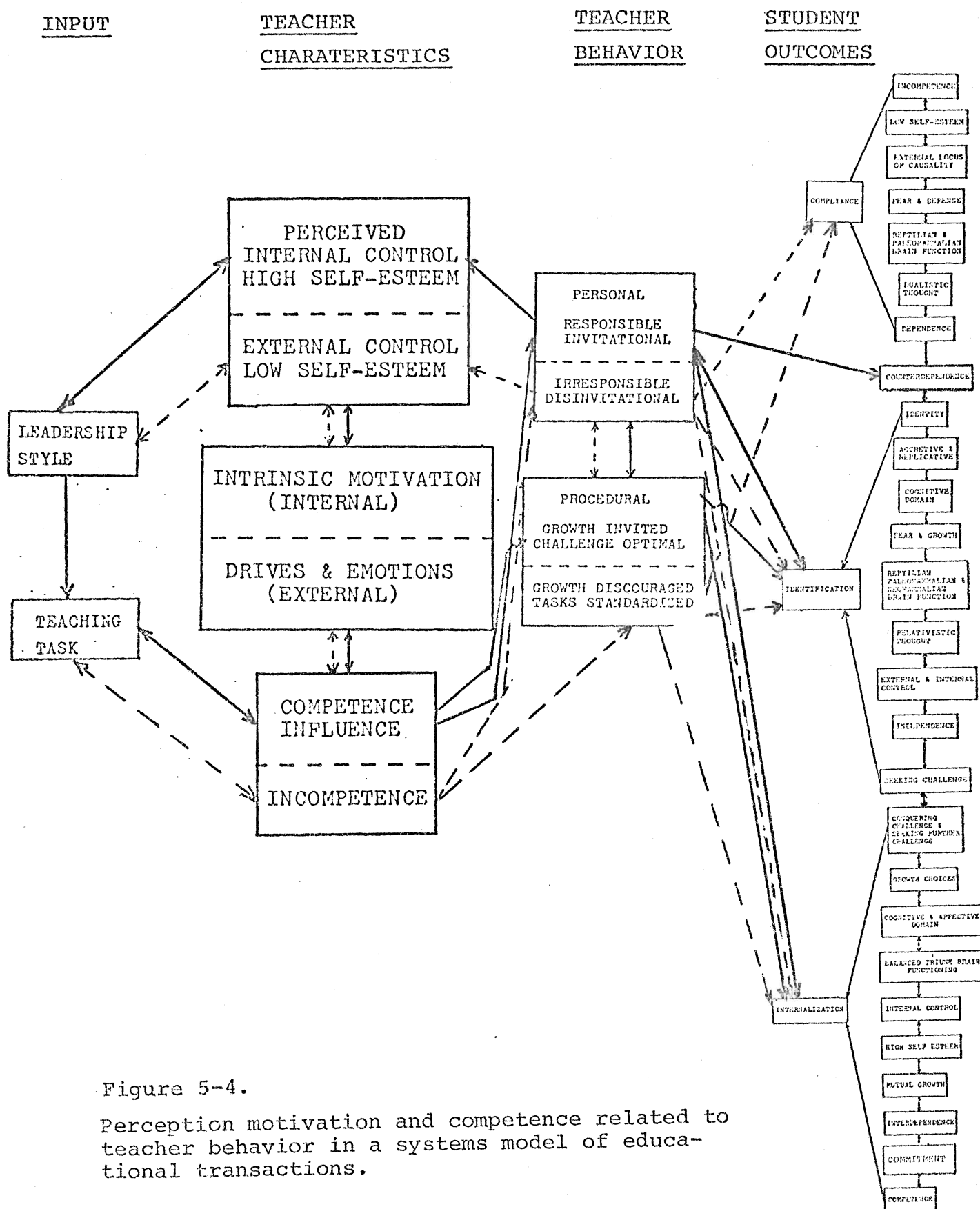


Figure 5-4.

Perception motivation and competence related to teacher behavior in a systems model of educational transactions.

hierarchy, and one that is considered as an interrupt drive in the paleomammalian brain. While this research by Miskel (1974) was completed on a small sample of college-educated teachers, they were not college teachers themselves, and the findings may not be possible to generalize. Pending research to clarify this finding, however, it does establish a possible approach-withdrawal conflict, that would reduce competence. Drives and emotions have been shown on figure 5-4 as being susceptible to external influence. More will be covered on this in later sections. While more research is needed and some needs to be replicated, existing evidence points to the positive features of the intrinsically motivated person as an effective teacher. Such motivation is correlated with competence, which will be considered next.

Competence

Competence is not only the focal point for the internal states of perception and motivation to unite, it is also where they are tangibly represented to the outside world. In a general systems framework, competence may be perceived as the interface between the person and other parts of the system. The competence or lack of it, in the college teacher, will be reflected to students as the type of personal and procedural behavior described earlier in this chapter (tables 5-2 and 5-3).

White (1959) defines competence as the person's capacity

to interact effectively with the environment. Power and influence are synonymous with competence. This implies the person has the ability to act upon situations to make an impact. The process involves a chain of events White (1959) described as involving "stimulation, cognition, action, effect on the environment, new stimulation, etc..." (p. 324).

Gilmore (1974) considers competence as the ability to cope with problems and has identified three stages of the process. His stages of awareness of the problem, thinking of alternate means to solve the problem, and deciding on a course of action, are agreed upon by researchers and practitioners alike, as steps in the creative process. The systematic nature of the thinking process was described by Maslow (1971), when he stated

In simple terms of time, bright ideas really take a small proportion of our time. Most of our time is spent on hard work...The fact that the people who create are good workers tends to be lost (p. 80).

In addition to the general term competence, Gilmore (1974) has listed a number of specific qualities. He considers the presence of cognitive skills as a prerequisite. An optimistic attitude about this ability applied to solving problems and a persistent searching for the answer are also seen as important. Competent people are not just processors of information, they are also capable of acquiring wisdom from drawing meaning from experience, and synthesizing knowledge.

Direction and control of perceptual, cognitive, and affective skills in the making of decisions is also representative. Flexibility of attitude and approach, together with a tolerance of ambiguity are yet other qualities.

The picture sketched above is of an aware individual who can effectively diagnose a variety of problems, has the needed knowledge and skill to implement the solution determined, and has the persistence and energy to carry it through to completion. These abilities evolve over a long period of time, through seeking and conquering optimal challenges.

Figure 5-4 shows how competence or incompetence is expressed in procedural and personal behaviors, and is recycled through perception as either high self-esteem and high locus of internal control, or the reverse. Since many additional variables have been shown at this stage, it is possible to see the dynamic quality of the interaction start to emerge.

Two possibilities suggest themselves when the model is considered. The first one is a positive cycle, starting with the teacher's perception of internal control and high self-esteem. The negative cycle is suggested when the teacher perceives he or she is externally controlled and has low self-esteem. Each cycle will be reviewed below.

Positive transactions will likely be initiated in the model through teachers who perceive themselves as internally controlled and who possess high self-esteem. Such individuals

will be more likely to engage in growth encounters with the environment because they perceive they have personal power to make things happen. Under these conditions, problems are seen as challenges that are opportunities to solve for the purpose of feeling competent and self-determined. These feelings bring the next block of the model into action, because intrinsic motivation has been activated. Under conditions of intrinsically motivated behavior, the person is engaging the higher centres of the brain and feeling pleasurable emotions. In addition, the person's lower order needs, such as security, are not affected. This means they will not interrupt the on-going intrinsically motivated state, and the person continues to seek challenge and growth opportunities. The person is engaged in rewarding themselves, rather than responding to external reinforcement. The reward comes from the feelings of competence and self-determination that arise as a result of successfully handling challenges.

Competence has been shown as a separate block in the model, but the activities that demonstrate this are tied in with intrinsic motivation, and teacher behavior, shown in the model (figure 5-4). The solid arrows illustrate the person's competence being expressed through personal and procedural actions. The prediction has been made that teachers with the characteristics evidenced in the positive cycle will act in responsible ways to students and be able to offer

effective invitations to learn and develop. They will also be more likely to develop procedures that invite student growth and offer optimal challenge. These outward actions are possible because the person is operating on a competent level, without the negative influence of lower-order drives and negative emotions interrupting the sequence.

The teacher being described likely has a clear perception of the reality of the situation and will probably avoid the reinforcement of student compliance outcomes. Instead, as the solid arrow indicates, they will be able to recognize the move students are making towards independence, when the stage of counterdependence is reached and students argue with authority figures and their peers. The arrow is shown as directed only toward counterdependence, because the teacher will be taking action to invite further growth towards the student's identity as a person, and not reacting in a defensive way. The arrow is thus shown as a one way communication.

As the students start to move down the identification hierarchy, this is picked up at the personal teacher behavior level, where the responsible teacher actions are sent to the person's perception area shown on the model and the teacher picks up further self-esteem and perceptions of internal locus of control. Another positive cycle is initiated, similar to the one described earlier. The teacher feels self-determined, competent, and influential. He is

intrinsically motivated, and in possession of a positive energy source to be able to offer students optimal challenges and invite further growth.

As the student grows toward internalization by seeking and conquering challenge, a similar cycle is established, and the teacher becomes even more intrinsically motivated. In this way both the teacher and the student establish a mutually beneficial relationship, and the growth and development of each continues. Because the lower-order drives are not activated, and the positive emotions of self-determination and pleasure are present to over-ride the destructive negative emotions, one can assume that intrinsic motivation will continue at a high level. One might say that this is indeed a "win-win" situation.

Negative transactions are also possible when a different set of variables are operating in the model. These inter-relationships have been represented as broken arrows and lines. This sequence also may start with teacher perception. Teachers who perceive they have an external locus of causality and possess low self-esteem will likely attribute causes of behavior to conditions beyond their control. Based on past reinforcement history, located in the second brain, they will likely be very responsive to external reinforcement that appeals to lower-order needs and emotions. The fulfillment of drives such as security, belonging, and status would occupy the person's time and effort. As a result, very little

would be left over for intrinsic motivation in the higher brain centres.

Teachers so motivated will likely be characterized by incompetence as their time and energy is devoted to preoccupation with the self. They will be too busy conforming to the desires of authority figures or students, and/or too concerned about security or status needs to diagnose the real needs of students. Such a teacher is truly caught in the middle, between his own demanding lower-order need structure and the requirements of the situation. As the model attempts to show, these lower-order drives and emotions are most susceptible to external influence.

This incompetence leads to irresponsible and disincentivational personal behaviors directed at compliance outcomes in students. Such actions, coupled with procedures that discourage growth and challenge, and standardized tasks that routinize the job, reinforce compliance outcomes, and may produce a variety of reactions, with few, if any, resulting in movement towards the higher identification and internalization outcomes. Depending on the entry level of the students, one could find anything from passive acceptance and manipulation to outright rebellion.

These reactions, that may be consciously or unconsciously perceived, tend to increase the feelings of low self-esteem and external locus of control. The destructive cycle continues with each one reinforcing the last and strategies

developed to cope becoming more rigid and less effective. On transactions such as these, everybody loses.

Two possible views of transactions within the model are described above. Additional speculation will be considered, but the input part of the model needs to be added first, in the form of the teaching task and leadership style.

Task and Administrative Input

Chapter four reviewed various environmental factors that nurture or discourage intrinsic motivation. The teaching task and administrative leadership were identified as two major variables that can affect intrinsically motivated faculty. While they work in concert with other parts of the systems model mentioned earlier, they make a crucial difference as input to the system. The operation of each of these important variables will be described within the context of the systems model of educational transactions.

The Teaching Task

The teaching job, at any level, is a complex, dynamic one, with an abundance of challenge. It involves the synthesizing of a large number of different behaviors in a fluid and changing environment that is seldom predictable. Thus the teaching job has variety, a specific identity, provides continuous feedback, and offers autonomy. These

are the core dimensions identified by Hackman and Oldham (1974) that are important to offer the challenge needed to encourage intrinsic motivation.

Within the classroom teachers have a large degree of autonomy and authority. This provides the opportunity for a variety of creative and innovative responses to the dynamic, ever-changing situation, and the chance to get immediate feedback on the actions taken. As to variety, the teaching task is ideal for the intrinsically motivated person. Providing the identity of the task is maintained and not fractionated or reduced through overspecialization, variety and challenge can be evidenced in the process of responding to the unique and changing needs of students.

Staw (1976) identified six additional characteristics of tasks that were described in chapter four as aiding the development of intrinsic motivation by providing the necessary environmental complexity. Both the four core characteristics (Hackman & Oldham, 1974) and these additional ones have been listed on table 5-4 because of their importance to the teaching task. As this thesis has indicated, the role of the college instructor is generally valued by the society, despite some of the current economic concerns and attempts by governments to reduce spending. As chapter two established, the community college in Ontario is in a particularly envious position. The real meaning, however, is inherent in the opportunity teachers have to help students become more skilled, knowledgeable, capable, sensitive,

aware, and mature. Every day teachers face the challenge of helping students become more competent through the process of diagnosing student needs and taking action based on these individual differences.

Because of the changing and growing nature of the students, task uncertainty is guaranteed. While the content may be similar from group to group in each subject area, the interplay of the students and their particular content needs mitigate against standardized approaches. This also places the responsibility for adequate diagnosis and the matching of student needs and content offerings with the instructor. These elements help to maintain the optimal level of challenge needed for intrinsic motivation to flourish.

As indicated in the previous chapter, social interaction is built into the teaching task and can be a mutually benefiting feature to both students and faculty alike. The subject itself, holds intrinsic interest for the teacher. Most college teachers were likely attracted to the colleges because they allowed them an opportunity to pursue a subject of great interest to them as well as help others share in the excitement they feel. It is possible for teachers to deepen their knowledge and interest in the subject, and at the same time, develop and perfect new approaches to the challenge of inviting students to become involved. Another opportunity also exists for teachers as they can do on-going

Table 5-4
Teaching Task Input Compared to Likert's (1977)
Systems One and Four.

	SYSTEM ONE	SYSTEM FOUR
Hackman & Oldham (1974)		
Variety		yes
Identity		yes
Feedback		yes
Autonomy		yes
Staw (1976)		
Task uncertainty		yes
Social interaction		yes
Task significance		yes
Responsibility for results		yes
Aid in removing barriers onself		yes
Match jobs to intrinsic ones		yes
Herzberg (1966)		
Enrich jobs or leave enriched jobs alone		yes
Aldag & Brief (1975)		
Broaden job scope possibilities with age		yes
Turnage & Muchinsky (1976)		
Allow participation in job decisions		yes
Cline (1974; Fox (1973)		
Involve faculty in decision-making and goal setting		yes
Driscoll (1978)		
Participation in decision-making		yes
Opacinch (1973)		
Faculty and student influence		yes

action research to add to the store of data available on questions such as those raised in this thesis, and to overcome some of the problems created by the lack of empirically based approaches.

Some of the other research reviewed in chapter four has also been summarized in table 5-4, and compared to both system one and system four leadership styles. The chart indicates that the factors considered important to an intrinsically motivated teaching task appear to be present under system four, but not in a system one climate. The effect of the input of leadership style will be considered next.

Leadership Style

The teaching task has numerous characteristics that make up the ingredients necessary for meeting the competence and self-determination needs of teachers. It would seem to be admirably suited to ensure the encouragement of intrinsic motivation as it has been defined in chapter three. How can leadership style have an effect?

The influence of leadership style has been shown in figure 5-5 as having a potential effect on both the teaching task and teacher characteristics. The impact can be positive, negative, or neutral. Based on the research summarized in chapter two and three, several areas appear to be crucial. The first is the teaching task itself. As pointed out in

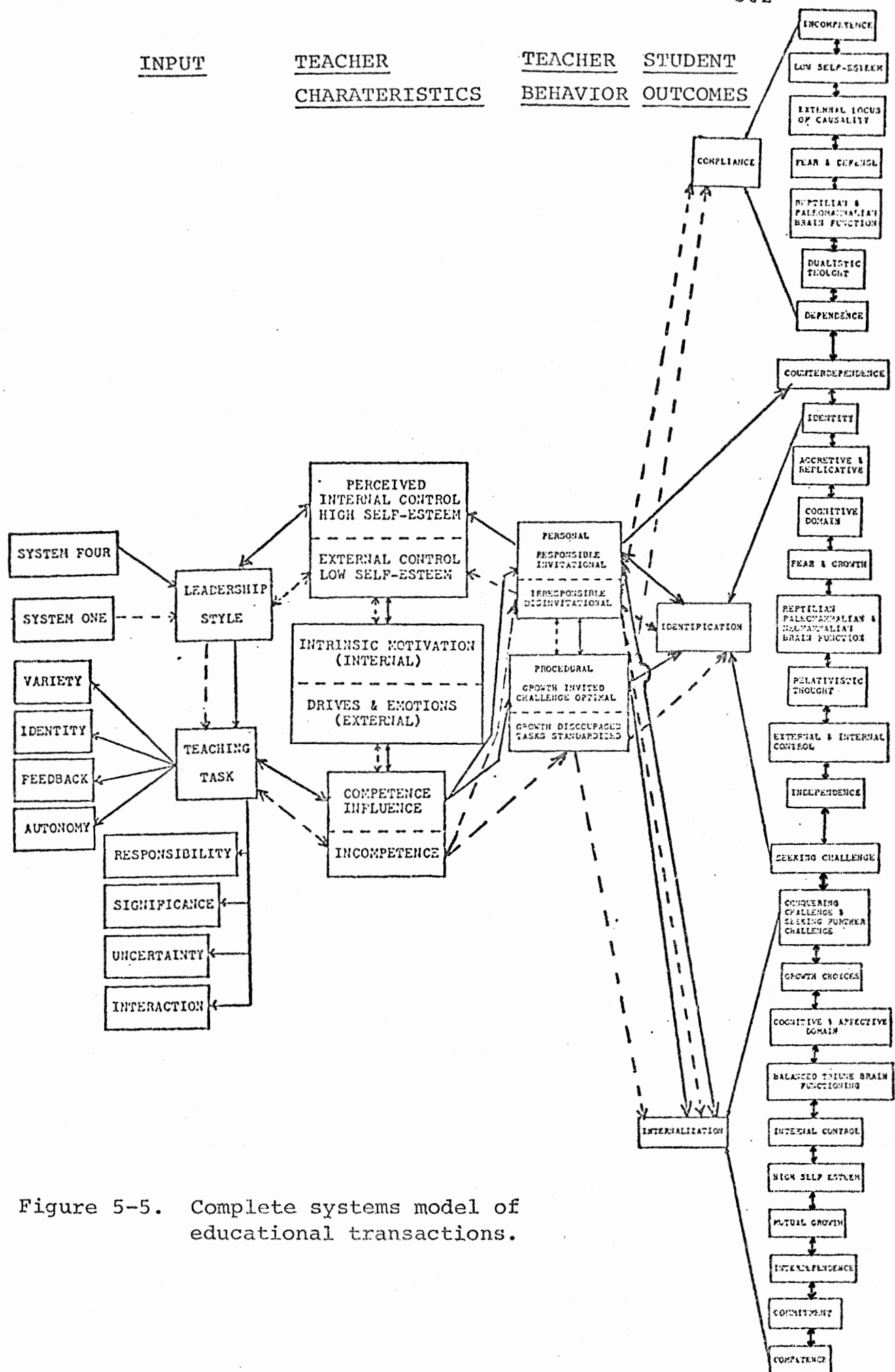


Figure 5-5. Complete systems model of educational transactions.

the last section, the teaching task contains characteristics that would seem to be ideally matched to the needs of intrinsically motivated faculty. If the goals of the college are to be met and the student outcomes of internalization reached, administrative actions that facilitate teacher-task transactions are necessary. In the same way, administrative responses that disrupt the teacher-student-task relationship would be the least desirable and have the effect of minimizing intrinsic motivation opportunities.

The second major area is the potential influence the administrator's actions may have on the teacher. Where authority differences are minimized and conditions created for self-motivation and internal locus of causality, teacher characteristics will be enhanced and competence facilitated. Faculty are valued rather than evaluated, when decision-making is shared; an interaction-influence system developed; a safe, non-threatening climate yet one that has high performance expectations established; allowance made for the matching of results with standards that are self-imposed, and feedback provided on goal attainment that is informational rather than controlling. These are typical actions that are representative of those listed in tables 5-4 and 5-5 as ones that nurture intrinsic motivation in faculty.

In chapter four, Likert's (1977) "System Four" leadership style was suggested as one that not only is supported by a large amount of empirical research, but is a

Table 5-5

Administrative Input Compared to Likert's (1977) Systems One and Four

	SYSTEM ONE	SYSTEM FOUR
Applebaum (1975)		
Individuals must follow own goals		yes
Motivation qualities of task considered		yes
Motivation realized as internal		yes
Leadership perceived as catalyst function		yes
Deci (1975)		
Challenging work environment need recognized		yes
Interpersonal support provided		yes
Self-determination allowed		yes
Rewards mediated internally through feelings of competence and self- determination		yes
Informational feedback, not controlling		yes
Likert (1977)		
Supportive relationships		yes
High performance expectations		yes
Healthy, productive, interpersonal faculty relationships		yes
Work facilitation		yes
Trusting climate		yes
Interaction influence system present		yes
Supportive peer leadership		yes
White (1959); Leff (1978)		
Exploratory behavior needs secure base		yes
Suchman (1971)		
Safe, non-threatening, trustworthy people		yes
Freedom from censure		yes
Responsive (collegial) environments		yes
Cohen (1973)		
Student interaction source of pleasure		yes
Feather (1968)		
Positive information on competence		yes
Staw (1976)		
Allow teacher to monitor and reward own accomplishment		yes

set of administrative behaviors that would tend to encourage the growth of intrinsic motivation. Both tables 5-4 and 5-5 offer a comparison of the characteristics needed for intrinsic motivation, and system one and four. System one, described in chapter four, does not facilitate any of these qualities, while system four meets the demands of all of them. What type of leadership can meet this challenge?

Administrators who can carry out effective system four leadership behaviors need a high degree of competence. They also must possess a high self-esteem and positive regard for the ability of faculty, as well as confidence in the teacher's skill and knowledge at dealing effectively and creatively with the challenge of bringing about internalization outcomes. This is essentially a belief that teachers possess intrinsic motivation which leads to competence on the job and the leader's role is that of facilitating the process of rewards coming from effectively performing the teaching task. Intrinsic motivation is thus further strengthened, because teachers are then able to develop feelings of competence and self-determination.

Organizational climates such as those characterized by system four actions, tend to develop interpersonally supportive behaviors that are mutually reinforcing. Like the double, solid arrow between teacher perception and leadership style suggests, (see figure 5-5) this is a feedforward-feedback situation. Research reviewed earlier indicated that teachers

will allow administrators who give their faculty a share in the decision-making and influence process an opportunity to influence faculty. In this climate of mutually supportive transactions the communication channels are open and free of distortion and the lower-order drives of security and belonging are met. This establishes a solid base for intrinsic motivation to energize the creative teacher behavior necessary for competence to be evidenced. Administrative strategies are characterized by awareness of the needs of the teaching task and the teacher, rather than administrative convenience.

At the practical level, this would mean that selection decisions, timetabling, room accommodation, meetings, and similar matters are structured with the teaching goals uppermost. This also implies that teachers would be free to use methods of teaching that meet the needs of students, the particular subject and the teacher's own strengths. Such a strategy is likely to increase intrinsic motivation and increase the likelihood that the teacher will be encouraged to seek further challenge in developing his or her own personal competence and experiment with creative approaches in the classroom.

In summary, the above speculations, based on empirical research, indicate that leadership style influences the teaching task and teacher characteristics. Effective (system four) leadership, as tables 5-4 and 5-5 show, tends to expand possibilities rather than restrict them. The

integrity of the intrinsically motivating task is not only maintained, but enhanced, through shared influence and an interaction-influence system that meets lower-order security needs so that the higher-order intrinsically motivated needs such as achievement can be instigated. Under these conditions, faculty can perceive themselves as internally controlled, have feelings of competence and self-determination, and display effective personal and procedural behavior to students.

The next section will offer some speculations on the implications of the total model, and raise certain hypotheses for future testing. The hypotheses suggested will be representative rather than exhaustive. It is hoped that the model will assist others to make further speculation and raise their own hypotheses.

The Total Model and Some Hypotheses for Testing

A model is a simplified representation of the real world. Models are created by speculating about processes that could have produced the observed facts. Models are evaluated in terms of their ability to predict correctly other new facts (Lane, 1975, p. 19).

In previous pages, various parts of the systems model of dynamic transactions among students, faculty, and administration have been detailed. As each section of the system was added, an attempt was made to speculate on the subsystem itself, and its interconnection with other parts

of the system. This evolutionary process has now reached the stage where it is possible to speculate on how the total model (figure 5-5) might function as a complete interdependent system. An attempt will be made to offer some speculative predictions on how this living system might operate in a variety of circumstances.

Because it may now be viewed as a living system instead of isolated parts, the model will be characterized as any other living system. This means it will be more than a sum of its parts, yet each part will be expected to be complete in itself, while existing interdependently with the other parts. The model also represents an open system and this would imply that the outside environment will have an effect on the internal transactions. Because of the cyclical nature of the transformation process, the outside environment will be affected by the system. This feature has been a major concern of this thesis and the central reason for the development of a model to ensure people are available to reduce entropy. The internal energy of intrinsic motivation can be expected to be a major feature, and one that can help the system to survive through growth and adaptation.

Another need required by living systems is that of balancing individual goals through open feedback and cooperative endeavour. In this way, the system turns multiple goal seeking into productive, rather than destructive

behavior. Finally, the system should evidence the principle of equifinality, in the ability to take different initial states and still reach student internalization outcomes.

A positive and a negative cycle will first be described, and hypotheses raised from each possibility. Because different combinations are possible with the variety of variables involved, a number of operations suggest themselves. Speculation will be made on the effects on the total system of holding some variables constant. Hypotheses will then be raised.

A Negative Cycle of Transactions

System one leadership style may be considered as the starting input in a negative cycle of transactions. As tables 5-4 and 5-5 demonstrate, none of the behaviors associated with administrative actions and the teaching task that facilitates intrinsic motivation are present in system one actions. A perusal of the "system one" behaviors listed in figure 5-6 will indicate why. This figure is a modified profile of the questionnaire developed by Likert (1976, p. 75) to assess the continuum of characteristic actions taken at system one, in the ineffective end, through to effective behaviors at the other extreme of system four.

The organizational variables or managerial actions listed on the profile say nothing of personal characteristics of managers. Like teachers and students, however, features such

		SYSTEM 1	SYSTEM 2	SYSTEM 3	SYSTEM 4	Item no.
LEADERSHIP	Organizational variables					
	How much confidence is shown in subordinates?	None	Condescending	Substantial	Complete	1
	How free do they feel to talk to superiors about job?	Not at all	Not very	Rather free	Fully free	2
	Are subordinates' ideas sought and used, if worthy?	Seldom	Sometimes	Usually	Always	3
MOTIVATION	Is predominant use made of (1) fear, (2) threats, (3) punishment, (4) rewards, (5) involvement?	1, 2, 3, occasionally 4	4, some 3	4, some 3 and 5	5, 4, based on group	4
	Where is responsibility felt for achieving organization's goals?	Mostly at top	Top and middle	Fairly general	At all levels	5
	How much cooperative teamwork exists?	None	Little	Some	Great deal	6
	What is the direction of information flow?	Downward	Mostly downward	Down and up	Down, up and sideways	7
COMMUNICATION	How is downward communication accepted?	With suspicion	Possibly with suspicion	With caution	With a receptive mind	8
	How accurate is upward communication?	Often wrong	Censored for the boss	Limited accuracy	Accurate	9
	How well do superiors know problems faced by subordinates?	Know little	Some knowledge	Quite well	Very well	10
	At what level are decisions made?	Mostly at top	Policy at top, some delegation	Broad policy at top, more delegation	Throughout but well integrated	11
DECISIONS	Are subordinates involved in decisions related to their work?	Not at all	Occasionally consulted	Generally consulted	Fully involved	12
	What does decision-making process contribute to motivation?	Nothing, often weakens it	Relatively little	Some contribution	Substantial contribution	13
	How are organizational goals established?	Orders issued	Orders, some comments invited	After discussion, by orders	By group action (except in crisis)	14
	How much covert resistance to goals is present?	Strong resistance	Moderate resistance	Some resistance at times	Little or none	15
GOALS	How concentrated are review and control functions?	Highly at top	Relatively highly at top	Moderate delegation to lower levels	Quite widely shared	16
	Is there an informal organization resisting the formal one?	Yes	Usually	Sometimes	No—same goals as formal	17
	What are cost, productivity, and other control data used for?	Policing, punishment	Reward and punishment	Reward, some self-guidance	Self-guidance, problem-solving	18
CONTROL						

Figure 5-6. Profile of organizational characteristics adapted from Likert (1976, p. 75).

as self-esteem, competence, motivation, and perception play an important part behind the scenes. A detailed examination of these characteristics is beyond the scope of this thesis, but they are necessary variables to consider when managerial actions are being assessed. One might say that "The greater the manager's understanding of himself the more effective and appropriate his actions will likely be" (Tremblay, 1976).

This places a large responsibility on the administrator to be aware of the impact of his actions and internal dialogue. Those who perceive themselves as externally controlled, have low self-esteem, and are extrinsically motivated by lower-order needs such as safety, security, status and power, will not likely be able to diagnose the needs of living systems specified in chapter one. The management subsystem was described as mainly responsible for coordination and control, but the way these functions are carried out can have considerable impact on the production, supportive, maintenance, and adaptive subsystems of the organization. Some administrators seem to be unaware of how their actions in controlling and coordinating can be more dysfunctional than helpful. It is these management actions that serve as input to the cycle of negative transactions.

Ineffective managers seem to express extreme behaviors. Blake and Mouton (1964) identified three inept leadership styles. Lowest on the list is the person who is completely incompetent, and withdraws from any decision-making, or active

involvement with his subordinates or others in the organization. This leadership style effectively eliminates the leadership block from the systems model. A positive feature of this passive response is the fact that this at least gives the faculty the freedom to be intrinsically motivated, and eliminates harmful interference with the teaching task. Such a laissez-faire style is often much preferred to the second set of leadership behaviors that stress the controlling element of the leadership task.

Those who adopt this style may be characterized as active incompetent instead of passive incompetent. Because these administrators do not trust or understand themselves, they will likely not be able to trust others. Their communication will likely contain a heavy element of control rather than information. Their response to feelings of low self-esteem is to attempt to reduce everything to manageable size. Detailed procedures, reduction in task complexity, many rules, regulations, and standardized methods prevail. In company with these restrictions is the limiting of upward influence, and information flow, in favour of downward demands. This often takes the form of sanctions against those who question the existing order of things. External reward and punishment is directed at lower-level needs, as the group is "whipped" into shape through various forms of conditioning. Like the compliance level of student outcomes, the organization appears well organized and efficient on the surface. More will be discussed about the long term disabling effect occurring

underneath.

A third ineffective style which often passes for an enlightened one is the style that stresses happiness at any price. Those who hold this assumption place the emphasis on surface agreement and harmony. Even though the cake may be disintegrating underneath, the icing must remain intact and sweet. Everyone is expected to like everything and everyone. Not "getting along" is seen as a signal of incompetence rather than a problem to be resolved or a natural state of affairs, such as the counterdependence stage that students will hopefully reach in moving towards identification and internalization outcomes. This type of climate in the organization influences staff and faculty alike, to ensure problems are not communicated upwards. Carried to extreme even the natural expression of discomfort and disagreement are pushed under and control passes to student like or dislike. The question most asked is not "what did you learn", but "what did you like".

All three of the leadership styles described above qualify to be subsumed under system one. A perusal of the six groupings of organizational variables listed on figure 5-6 will show how all three relate, even though system one was intended to represent the second, autocratic behavior style described above. In following the effect of leadership style through the model, the first one will be eliminated, and the other two grouped together because of the similar effect they have on the systems model.

In this simplified negative cycle, only those transactions denoted by a dotted arrow and the factors beneath the dotted lines will be considered. The negative cycle assumes that all the less desirable aspects work together. Later, other possibilities will be reviewed. For clarity and parsimony, these transactions have been outlined in table 5-6. Each major part of the systems model (figure 5-5) will be compared to both the "autocratic" system one style, and the "happiness" system one style. Three speculative hypotheses will be raised on the basis of the data contained in table 5-6.

Hypothesis I: Passive Incompetent System One Input (H_1)

College administrators who adopt a withdrawal, avoidance or passive incompetent style, will effectively eliminate their input to the model of educational transactions. In this vacuum, the effectiveness of the system will depend on the characteristics and behavior of the teachers, working in a climate where no support can be expected from the organizational hierarchy. Student outcomes will thus vary with teacher effectiveness factors set out in the model.

Hypothesis II: Active Incompetent System One Input (H_2)

College administrators who manage in an autocratic, active incompetent style, will tend to reduce the energy

Table 5-6

Input of System One "Active Incompetent" and "Happiness Incompetent" Leadership Styles on a Negative Cycle of Educational Transactions

	ACTIVE INCOMPETENT SYSTEM ONE	HAPPINESS INCOMPETENT SYSTEM ONE
TEACHING TASK	Complexity of task. Reduced, simplified, standardized, and automated.	Task smothered, but left with surface illusion that complexity remains.
TEACHER PERCEPTION	Teacher perceives task as routine, lessens expectations, lowers self-esteem, acquires or reinforces external locus of control.	Teacher confused with conflicting message about task and responsibilities. Low self-esteem likely connected. Turns to external locus of control.
TEACHER MOTIVATION	Safety and security activated. External reinforcement main energizer.	Safety and belonging needs activated. Esteem needs met by "getting along". External reinforcement.
COMPETENCE	Reduced task feeds incompetence and lower-order need activation reduces activity.	Since "not making waves" is the measure of competence the teaching suffers.
TEACHER PERSONAL BEHAVIOR	Irresponsible, since more and more decisions are left to those "in authority". Disinvitational, as involvement causes change.	Irresponsible, since taking action might make for unhappiness. Disinvitational, as challenging students to learn may be seen as being nasty.
TEACHER PROCEDURAL BEHAVIOR	Growth discouraged as it does not conform to the rules and standards set.	Anything goes, as long as it doesn't create unhappiness through too many demands and maintains happiness.
COMPLIANCE OUTCOMES	Students are expected to conform to the requirements set.	Students are in control as they can complain they are unhappy with too much "work".

of intrinsic motivation in faculty. Because these administrators tend to reduce the complexity of the task, instructors perceive the locus of control is external and have low self-esteem as teachers. Their safety and security needs are activated and they become more reliant on external reinforcement. Teaching becomes standardized and routine, as more and more decisions are left to administrators. Since the instructor's security depends upon conformity to the standards established, this will be passed on to students, who can be expected to develop compliance outcomes.

Hypothesis III: Happiness Incompetent System One Input (H_3)

College administrators who use a "peace at any price" style of management will tend to smother the task and teacher-student creativity. Intrinsic motivation will be suppressed and replaced by the activation of the lower-order belonging needs. Challenge and innovation will be reduced and compliance of teachers can be obtained by students on the basis of their "happiness quotient". Thus, manipulative student outcomes are encouraged.

The three hypotheses indicated above are general, speculative possibilities. They are based on the assumption that all but the input is held relatively constant in a cycle of negative transactions. In the next section, a positive

cycle will be reviewed.

A Positive Cycle of Transactions

Much has already been stated about the effectiveness of system four administrative actions in bringing about the healthy transactions needed in the systems model (figure 5-5). Figure 5-6 lists the kinds of actions and activities that are necessary for a system to survive. They are compatible with the characteristics established for all living systems in chapter one. Table 5-4 indicates how system four actions encourage the kind of teaching task that offers the challenge needed for intrinsic motivation to flourish. Table 5-5 compares the support system needed for intrinsically motivated faculty and for the production of student internalization outcomes. The kind of teacher behaviors required to bring about these outcomes were listed in table 5-2 and table 5-3. With the coverage in earlier chapters, these tables would appear to be self-evident, and not require further explanation. Instead, the following hypothesis will be considered:

Hypothesis IV: System Four Input (H_4)

College administrators who use a system four leadership style will establish the type of organizational climate that ensures the challenge needed in the teaching task,

by intrinsically motivated faculty, will not be eroded. Further, a support system will be established that allows for interaction-influence, high performance expectations, trust, internal locus of control, and high self-esteem. Rewards in the organization come from feelings of competence and self-determination. These intervening variables will result in a heterostatic organization and internalization outcomes in students.

While the above hypothesis can be considered rather general and could be split into several, it is presented as a collection of variables for further speculation. In the next section, alternate possibilities will be described, using a variety of combinations the model makes evident. Educational institutions, like other organizations, are neither completely positive or negative, as described above. Speculative hypotheses will now be raised on some of the other possibilities that might exist.

Alternate Hypotheses

The mix of individuals in any organization is likely to produce a variety of reactions because of the many combinations that may result. In the hypotheses that follow, certain variables will be held constant while others are varied.

Hypothesis V: System One Input and Positive Organizational Variables (H₅)

Administrators who adopt a system one active incompetent style with faculty who perceive themselves as internally controlled have high self-esteem, and are intrinsically motivated, will likely encounter resistance in the form of strong faculty groups. Further, this can be expected to reduce the amount of available energy and competence in the organization, as it will be drained off in the pursuit of internal politics. The end result will be reduced competence in teachers, directed at student outcomes, which reduces the chance of internalization outcomes being achieved.

Hypothesis VI: System Four Input and Negative Organizational Variables (H₆)

College administrators who use a system four leadership style with faculty who have an external locus of causality, low self-esteem, are motivated by lower-order needs, and respond to external reinforcement will likely find pressure on them to return to a more dependent relationship such as that offered by system one.

Hypothesis VII: Gradual Movement Toward System Four Leadership in an Organization Having Negative Variables (H₇)

College administrators who diagnose the perceived and

actual level of faculty motivation and competence and gauge their organizational development plans accordingly, will likely have an organization that becomes increasingly more able to bring about student internalization outcomes.

Hypothesis VIII: Positive Organizational Variables and Compliant Students (H_8)

Colleges that are characterized with system four leadership, a challenging teaching task, and effective teacher characteristics and behavior will be able to assist students to grow toward internalization outcomes needed by society to reverse entropy.

The hypotheses suggested above are only a start in the direction of raising some possibilities for further testing. Speculation is invited on additional possibilities the model might suggest. Throughout this thesis areas were opened up for further exploration. The range of possibilities has gone from the challenge of developing a valid and reliable measuring instrument for intrinsically motivated college faculty, to the challenge to use the total model to design multivariate methods for testing.

Overall Summary and Conclusion

Preceding pages have attempted to take the perspective of a living systems approach. The point that has been raised in several chapters is the open, natural system of society needs self-renewing, internally controlled, and intrinsically motivated individuals working together in a mutually interdependent, growing relationship. This growth has also been visualized as systematic and toward the increasing complexity of cognitive structure. Since the human being has the most effect on all living systems, it was considered imperative that change be directed through rational processes rather than mindless and destructive approaches that are all too current in today's world.

Needed instead is the rational balance of both homeostatic forces for stability and the heterostatic forces of change. Such a balance was perceived as possible if the colleges play their part in assisting student growth towards internalization outcomes. It was suggested that graduates of the colleges who are intrinsically motivated, internally controlled and competent, will be able to assist society reverse entropy. This statement was based on the assumption that the person is a crucial variable in the total living system and can make a difference in the total overall direction of our society, even though the contribution may appear small. It is the collective logic and knowledge put together in an interdependent way, in mutual growth, that may reverse the downward

spiral of society.

Chapter one established several goals. The major objective was to synthesize a wide variety of key variables in the form of a systems transactional model, that would offer teachers, administrators, and researchers a paradigm to guide effective action, to bring about suitable student outcomes. The objective of synthesizing diverse and fragmentary efforts on the part of educators, researchers, organizational psychologists, motivational psychologists, brain researchers, neuropsychologists, social psychologists, and developmental psychologists was visualized as part of this wider goal. Each seemed to be moving in their own direction without reference, and often without knowledge of the work accomplished by the others. At the same time, each area was calling for a conceptual model that would bring their own research together. No conceptual model could be found for the transactions within colleges. A final goal was that of clarifying the important concept of intrinsic motivation, to describe what administrators might do to nurture intrinsic motivation and internal control in faculty.

The community college as a subsystem of society was reviewed in chapter two. The point was made that education is valued by Canadians, and the Commission on Post-Secondary Education in Ontario (1972) stressed the importance of the colleges developing the critical thinking needed for society to adapt and survive. The early development, formative

years, and current progress of the Ontario community college system was summarized. Colleges have achieved success in establishing themselves organizationally as a viable alternative to university. Currently, they are undergoing more popular appeal than universities, and have increased their enrollment when the universities have decreased. This was seen as short-lived phenomenon, unless the community colleges can meet the next challenge at the crossroads. This goal is the development of individual potential through increased competence, effective problem-solving skills, and awareness of the world's living system problems and potential. A means to accomplish this goal was seen as the creation of an interdependent mutually supportive organizational climate where intrinsic motivation could flourish as a vital energy force.

Because of the importance of intrinsic motivation, chapter three was devoted to its description, explanation, and placement of this energy force in a systems context. It was pictured as an energizer needed by the society, and by the colleges. Four major subsystems were identified and described. The point was raised that each of the subsystems of the person function best when they work in harmony, and a special place was established for the cognitive and motivational-emotional subsystems. The motivated state was described as the natural condition of the human being. When this intrinsic motivation combined with the cerebral cortex, the person is not only in the truly human state, but is able to seek and conquer optimal challenge. A section of this chapter was

also devoted to the research problems of developing suitable models, operational definitions, and instrumentation. The importance of the qualities associated with intrinsically motivated individuals for the living system of society, education, and in particular, faculty, was stressed. Characteristics of effective teachers, and how these qualities related to intrinsic motivation was considered, and three student outcomes were identified. Internalization student outcomes were perceived as those needed by society and most likely to be brought about by intrinsically motivated faculty.

The need for internalization outcomes in students was also stressed in chapter four, as a necessary force that could reverse entropy and the negative trends so evident today (Mesarovic & Pestel, 1974). An argument was made for the need to avoid the mistakes made by business organizations in the past, as colleges seek to emulate the industrial community. Organizational theory and management practice were reviewed to highlight this trap that awaits the unwary administrator. The remaining part of the chapter reviewed organizational climates, leadership actions, and tasks that encourage intrinsic motivation. Of special concern was Likert's (1977) system four leadership style, as a suitable means of nurturing intrinsic motivation. A review of various organizational models of motivation was undertaken in the last section of the chapter, to serve as background for the detailed systems model of educational transactions to be considered in the last chapter.

An attempt was made in this fifth and last chapter to describe detailed parts of the systems model of educational transactions, using the research and conceptions presented in previous chapters. The total model was reviewed again, as a more complete system than provided in chapter one, and both a negative and a positive cycle of transactions was reviewed. This was followed by a detailed explanation of each of the four major areas of the model. Since the goal of the colleges is to nurture student outcomes, this area was considered first. Research covered in previous chapters was summarized in table 5-1, and compared to compliance, identification, and internalization outcomes. This hierarchy of Harrison's (1972) was then used as a basis for a growth hierarchy of student outcomes (figure 5-2). The next part of the model to be detailed was the personal and procedural teacher behaviors that have the most influence on ensuring that internalization outcomes will be attained. While it was pointed out that this is an area where much research still is required, the findings covered previously were organized in tables 5-2 and 5-3, to show how each of them might compare to compliance, identification, and internalization outcomes in students. This was then organized in figure 5-3 to demonstrate how the positive and negative behaviors relate to student outcomes.

Teacher characteristics that relate to teacher behaviors were then reviewed and added to the model (figure 5-4). The

data considered in chapter three was related and both a positive and a negative cycle of transactions described. The last part of the model, the task and administrative input, was added and research that described desirable actions for both was set out in table 5-4 and 5-5. In comparing these qualities against systems one and four, none of the characteristics associated with positive features was found in system one leadership action. The total model (figure 5-5) was then used to establish some hypotheses for testing, and to invite further speculation. In comparing both "active incompetent" and "happiness" system one leadership actions in table 5-6, it was shown that system one leadership input decreases the possibility of internalization outcomes in students, and results in reinforcing compliance or manipulative student behaviors. System four, on the other hand, was associated with the variables correlated with student internalization outcomes.

The main purpose of this thesis has been to develop a speculative model that groups together a large number of empirical research studies in such a way that their common elements and their orientation to a similar goal can be perceived. The result is a tentative first step towards a systems model of educational transactions that supports the notion that administrators, faculty, and students can work together to achieve the kind of competence society needs to reverse entropy. While the fabric of the synthesis is still

lacking some empirical evidence to make it totally complete, enough support seems to exist to meet the goal that Coleman (1979) described for conceptual models when he said they are "tools that can help investigators organize and interpret masses of data that might otherwise prove meaningless and unwieldly" (p. 29).

An invitation is extended to researchers, teachers, students, and administrators, to use the model of educational transactions as a starting place for continued speculation. It is hoped that the model offers sufficient challenge for others to raise additional hypotheses, empirically test various parts of the model and the interrelationships suggested, and question the assumptions on which the conception is based. In the same way this study has been built on the research of others, perhaps it can serve as a means to continue the excitement and pleasure of the search for additional questions and answers.

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